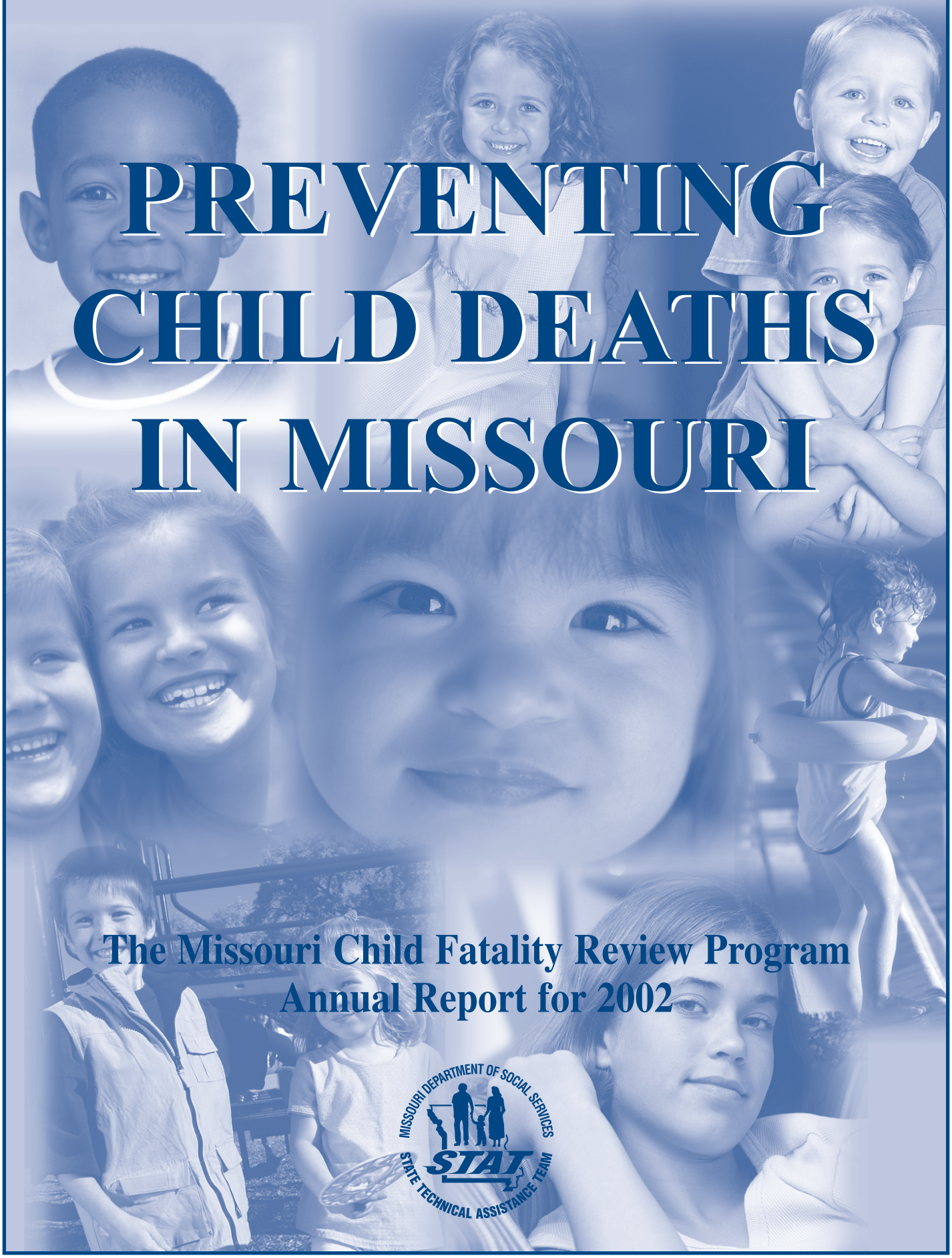

PREVENTING CHILD DEATHS IN MISSOURI

The Missouri Child Fatality Review Program Annual Report for 2002

MISSOURI DEPARTMENT OF SOCIAL SERVICES
STAT
STATE TECHNICAL ASSISTANCE TEAM

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State of Missouri

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Preventing Child Deaths in Missouri

The Missouri Child Fatality Review Program Annual Report for 2002

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November 15, 2003

Dear Friends:

Based on the need to better understand how and why children die, Missouri's Child Fatality Review Program (CFRP) was implemented on January 1, 1992. Although the program has evolved and adapted to meet new challenges, the objectives have remained the same — identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies. While many factors can be attributed to the decrease in the death rate of Missouri children over the past decade, we believe the CFRP has made a significant contribution to this decrease.

Most states now have some form of child fatality review; however, Missouri's approach remains unique in that it is community driven with a statewide scope. The State Technical Assistance Team (STAT) manages the CFRP and also provides a comprehensive and integrated system of services and support to the entire child protection community. The 115 county-based, multidisciplinary CFRP panels can respond immediately to risks in their communities identified during the review process. What they learn is collected on standardized data collection forms and submitted to a database that identifies statewide trends and patterns, which may require policy and legislative considerations. Beyond Missouri, our program has become a national and international model.

The 2002 Child Fatality Review Program Annual Report is the result of work and contributions by the hundreds of CFRP panel members and their supporting agencies. Their work is a true expression of advocacy for Missouri's children and families.

Sincerely,

Harry D. Williams
Director

Table of Contents

Dedication

This report reflects the work of many dedicated professionals throughout the state of Missouri. Through better understanding of how and why children die, we strive to improve and protect the lives of Missouri's youngest citizens. We will always remember that each number represents a precious life lost. We dedicate this report to these children and their families.

MISSOURI CHILD FATALITY REVIEW PROGRAM

Child Fatality Review in Missouri

Death rates for infants, children, and teens are widely recognized as valuable measures of child well-being, particularly when viewed within the context of a decade of demographic changes in our state. However, it is the accuracy of key factors associated with child deaths that provides the basis for identifying vulnerable children and responding in ways that will protect and improve their lives. In 1995, the U.S. Advisory Board on Child Abuse and Neglect concluded that child abuse and neglect fatalities, and other serious and fatal injuries to children could not be significantly reduced or prevented without more complete information about why these deaths occur and how such tragedies might be avoided. It was widely acknowledged that many child abuse and neglect deaths were underreported and/or misclassified. Scholars, professionals, and officials around the nation had agreed that a system of comprehensive Child Death Review Teams could make a major difference. In 1991, Missouri had initiated the most comprehensive child fatality review system in the nation, designed to produce an accurate picture of each child death, as well as a database providing ongoing surveillance of all childhood fatalities. The Missouri Child Fatality Review Program (CFRP) was presented in the Advisory Board's report as a state of the art model. While the program has evolved and adapted to meet new challenges, the objectives have remained the same-identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies.

In Missouri, all fatality data is collected by means of standardized forms and entered into a database. What is learned can be used immediately by the community where the death occurred. The sum of statewide data is used to identify trends and patterns requiring systemic solutions. The Missouri Child Fatality Review Program has succeeded in remaining effective, relevant and sustainable over 10 years. The success of the program is due in large part to the support of panel members, administrators and other professionals who do this difficult work voluntarily, because they understand its importance. This work is a true expression of advocacy for children and families in our state.

Missouri legislation requires that every county in our state (including the City of St. Louis) establish a multidisciplinary panel to examine the deaths of all children under the age of 18. If the death meets specific criteria, or if requested by the coroner/medical examiner, it is referred to the county's multidisciplinary CFRP panel. The minimum core panel for each county includes: Coroner/Medical Examiner, Law Enforcement, Family Court, Emergency Medical Services, Prosecutor, Public Health and Children's Division. Optional members may be added at the discretion of the panel. The panels do **not** act as investigative bodies. Their purpose is to enhance the knowledge base of the mandated investigators and to evaluate the potential service and prevention interventions for the family and community.

Of all child deaths in Missouri, about 1200 deaths annually, approximately one-third merit review. To come under review, the cause of the child's death must be unclear, unexplained, or of a suspicious circumstance. All sudden, unexplained deaths of infants one week to one year of age, are required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory.)

STATE TECHNICAL ASSISTANCE TEAM AND CHILD FATALITY REVIEW PROGRAM

Missouri State Statutes

- Section 210.150 and 210.152 (Confidentiality and Reporting of Child Fatalities)
- Section 210.192 and 210.194 (Child Fatality Review Panels)
- Section 210.195 (State Technical Assistance Team - duties)
- Section 210.196 (Child Death Pathologists)
- Section 211.321; 219.061 (Accessibility of juvenile records for child fatality review)
- Section 194.117 (Sudden Infant Death); infant autopsies
- Section 58.452 and 58.722 (Coroner/Medical Examiners responsibilities regarding child fatality review)

Confidentiality Issues (RSMo 210.192 to 210.196)

A proper Child Fatality Review Program (CFRP) review of a child death requires a thorough examination of all relevant data, including historical information concerning the deceased child and his/her family. Much of this information is protected from disclosure by law, especially medical and child abuse/neglect information. Therefore, CFRP panel meetings are always closed to the public and cannot be lawfully conducted unless the public is excluded. Each CFRP panel member should confine his or her public statements only to the fact that the panel met and that each panel member was charged to implement their own statutory mandates.

In no case, should any other information about the case or CFRP panel discussions be disclosed. All CFRP panel members who are asked to make a public statement should refer such inquiries to the panel spokesperson. Failure to observe this procedure may violate Children's Division regulations, as well as state and federal confidentiality statutes that contain penalties.

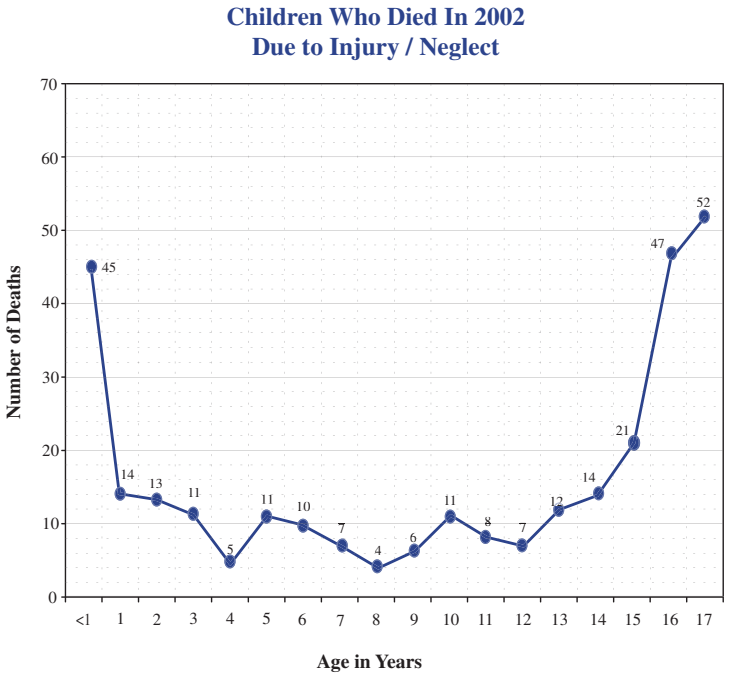
Individual disciplines (coroner/medical examiners, sheriff departments, prosecuting attorneys, etc.) can still make public statements consistent with their individual agency's participation in the investigation, as long as they do not refer to the specific details discussed at the CFRP panel meeting.

No CFRP panel member is prohibited from making public statements about the general purpose, nature or effects of the CFRP process. Panel members should also be aware that the legislation which established the CFRP panels provides official immunity to all panel participants.

Child Fatalities in Missouri

Child fatalities represent the extreme of all issues that have a negative impact on children. While the number of deaths of children reported to the Child Fatality Review Program (CFRP) remained relatively stable over the past decade, the rate of child deaths has decreased. According to the Missouri Department of Health and Senior Services, the death rate for children ages 1-14 has dropped from 32.7 per 100,000 to 26.5 per 100,000 (based on five-year aggregate data, to allow for more stable rates). While there are many reasons for these decreases, certainly Missouri's Child Fatality Review Program has been a major contributing factor.

The rate of death among infants, less than one year of age, has also shown a steady decline during the last decade, from 9.6 to 7.5 per 1,000 live births, according to the Department of Health and Senior Services (also based on five-year aggregate data). Most infant deaths are related to prematurity, congenital anomalies, infection and other conditions, most of which occur within the first three days of life. Beyond illness/natural cause, infants and toddlers are especially vulnerable to fatal injury and neglect, particularly due to child abuse, unintentional suffocation, and lack of supervision.



This "inverted bell" graph demonstrates the relationship between age and death among children due to injury. Infants and young children are more vulnerable to serious and fatal injury, whether intentional or unintentional, because of physical and behavioral characteristics related to growth and development. Teens, on the other hand, are prone to engage in risk-taking behaviors that contribute to death and serious injury, primarily from motor vehicle crashes. The rate of violent deaths among teens rose for a period of time in the early 1990's, from 81.3 to 90.8 per 100,000 (ages 15-19), but declined dramatically in recent years to 58.6 per 100,000 (Missouri Department of Health and Senior Services). New state legislation requiring graduated licensing for teens took effect in January 2001. It is anticipated that this law will significantly reduce fatal injuries among teen drivers and their passengers in Missouri, as it has in other states.

SECTION ONE:
Missouri Incident Fatalities

"A simple child,
That lightly draws its breath,
And feels its life in every limb,
What should it know of death?"

- William Woodsworth

In reviewing this report, the reader should be aware of some important definitions and details about how child deaths are reported and certified in Missouri, summarized here: (Please refer to Appendix 6, Definitions of Important Terms and Variables, for additional information.)

- **"Missouri Child Fatalities"** refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness, injury or event occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and brought to a Missouri hospital, where he or she subsequently dies, would be counted as a "Missouri Child Fatality." This death would be reported to the Child Fatality Review Program on a Data Form 1, Section A only, as an out-of-state event and reported to Illinois.)

- **"Missouri Incident Fatality"** refers to a *fatal illness, injury or event,* which occurs *within the state of Missouri.* (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the *fatal injury, illness or event* occurred.

- *Every* Missouri incident child fatality is required to be reviewed by the coroner or medical examiner and the chairperson for the county Child Fatality Review Panel. The findings of that review are reported on the Data Form 1.

- Any child death that is *unclear, unexplained, or of a suspicious circumstance, and all sudden, unexplained deaths of infants one week to one year of age* are required to be reviewed by a county-based Child Fatality Review Panel. Panel findings are reported on the Data Form 2. Panel members receive annual training on the investigation of child fatalities.

- **Multiple-Cause Deaths:** *Cause of death* is a disease, abnormality, injury or poisoning that contributed directly or indirectly to death. However, a death often results from the combined effect of two or more conditions. Because the Child Fatality Review Program is focused on the prevention of child fatalities, the precipitating events are of particular concern. Therefore, deaths are categorized according to the *circumstances of the death,* which may not be the immediate cause of death listed on the death certificate. (An example would be a child passenger in a car that runs off the road and lands in ditch full of water; the "immediate cause of death" is listed on the death certificate as "drowning," but the precipitating event was a motor vehicle accident. This death would be reported in the Motor Vehicle Fatalities section, with a footnote indicating that the death certificate lists "drowning" as the immediate cause of death.)

- The Child Fatality Review Program data management unit links data collected on the Data Forms 1 and 2 with Department of Health and Senior Services birth and death data. Every attempt is made to reconcile the two systems; however, in some cases, crucial data components are incomplete and are noted, as appropriate.
- All deaths included in this 2002 CFRP Annual Report occurred in calendar year 2002. Some of the cases reviewed may not have been brought before a county panel until the year 2003.
- In some cases, panels did not complete all of the information requested on the data form.
- Of the 491 Missouri Incident Fatalities reported on a Data Form 1 in 2002 with indication for review, 20 did not receive required CFRP panel review or panel findings were not submitted on a Data Form 2. These 20 fatalities are included in this 2002 CFRP Annual Report because the data, though incomplete, is useful and accurate within the limitations of the Data Form 1 information.
- In 2002, 43 Missouri Incident Fatalities were not reported on either a Data Form 1 or Data Form 2, but were reported to CFRP by death certificates from the Department of Health and Senior Services. From information provided by the death certificates, eighteen of these 43 fatalities (42%) had at least one indication for review. These fatalities are not included in the data for this annual report.

Summary of Findings, Missouri Incident Fatalities, 2002

In 2002, **1246** children age 17 and under died in Missouri. Of those deaths, **1080** were determined to be "Missouri incident fatalities" and, therefore, subject to review by the coroner or medical examiner. Of the 1080 deaths, **491** had an indication for review by a county Child Fatality Review Panel and of those **471** were reviewed and a Data Form 2 completed.

Figure 1. Missouri Child Fatalities vs. Missouri Incident Fatalities

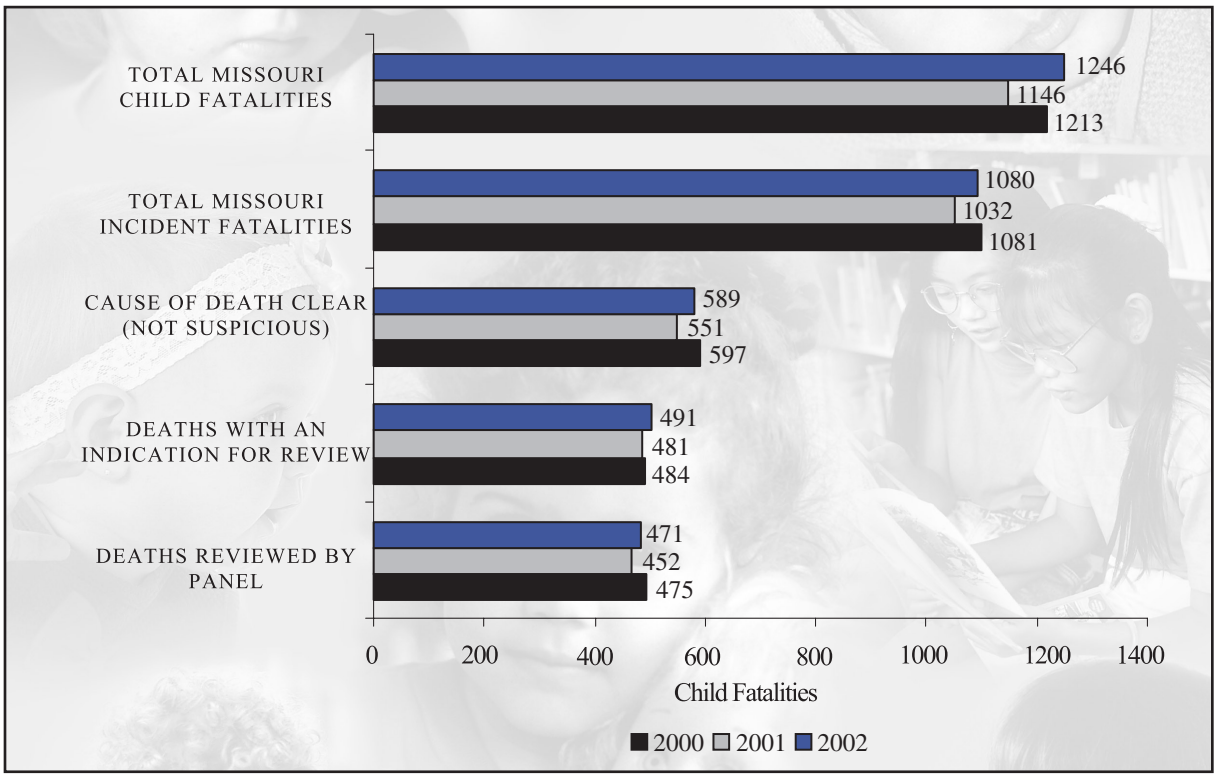
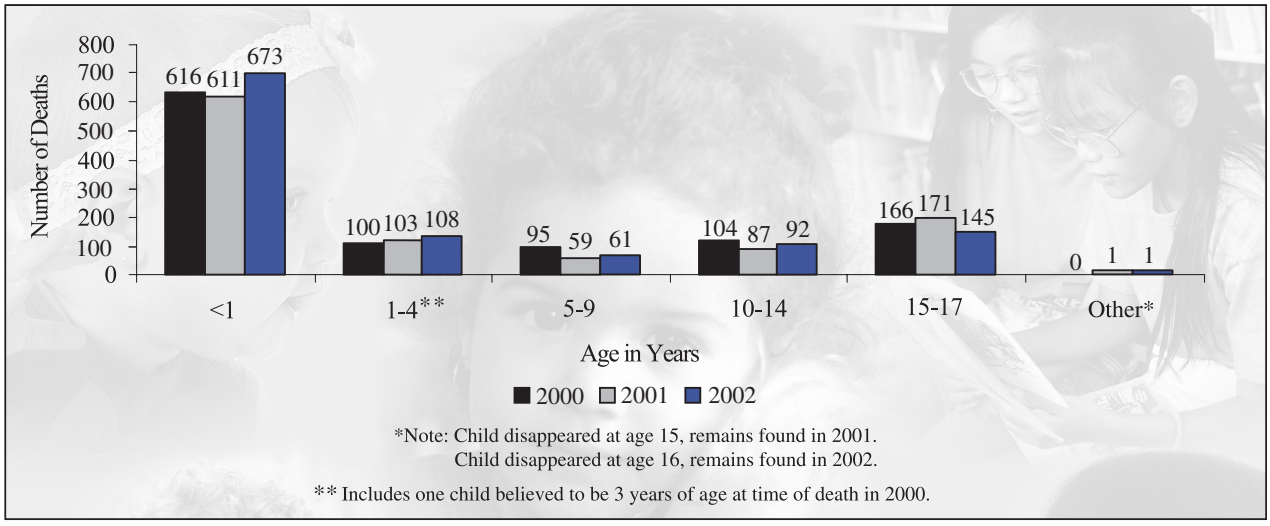


Figure 2. Missouri Incident Fatalities by Age



*Note: Child disappeared at age 15, remains found in 2001.
Child disappeared at age 16, remains found in 2002.

** Includes one child believed to be 3 years of age at time of death in 2000.

Figure 3. Missouri Incident Fatalities by Sex and Race

Sex	2000	2001	2002	Race	2000	2001	2002
Female	463	421	464	White	787	706	758
Male	618	611	616	Black	284	310	303
				Other	10	16	19
	1081	1032	1080		1081	1032	1080

Figure 4. Missouri Incident Fatalities by Manner

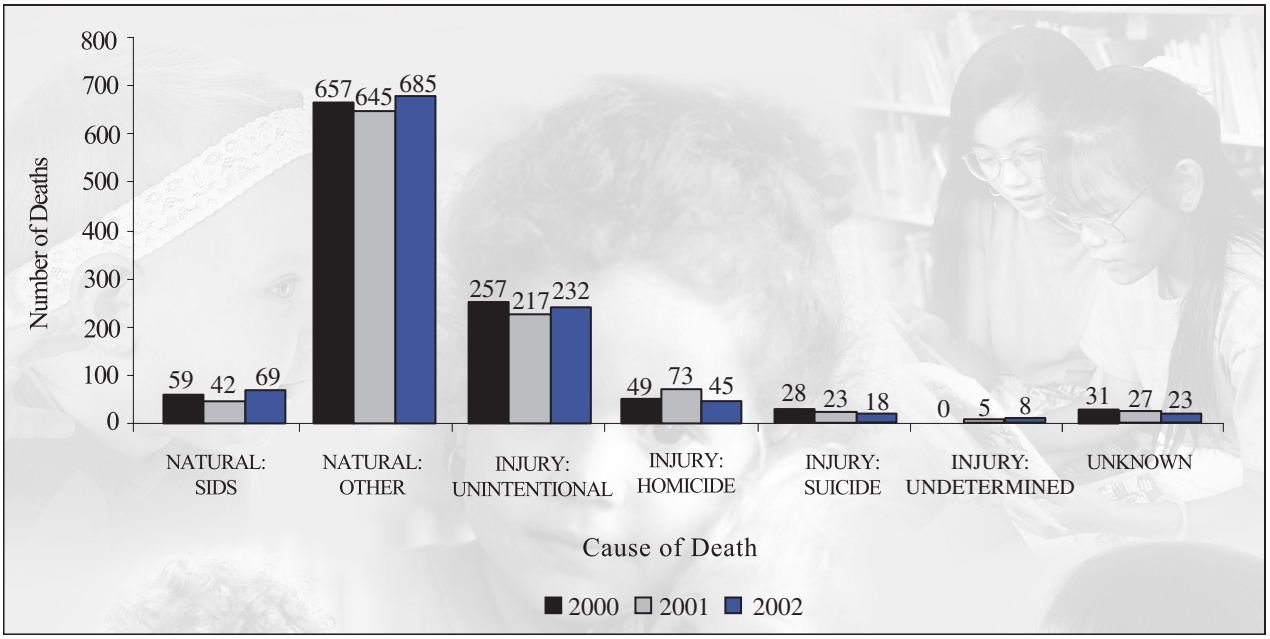
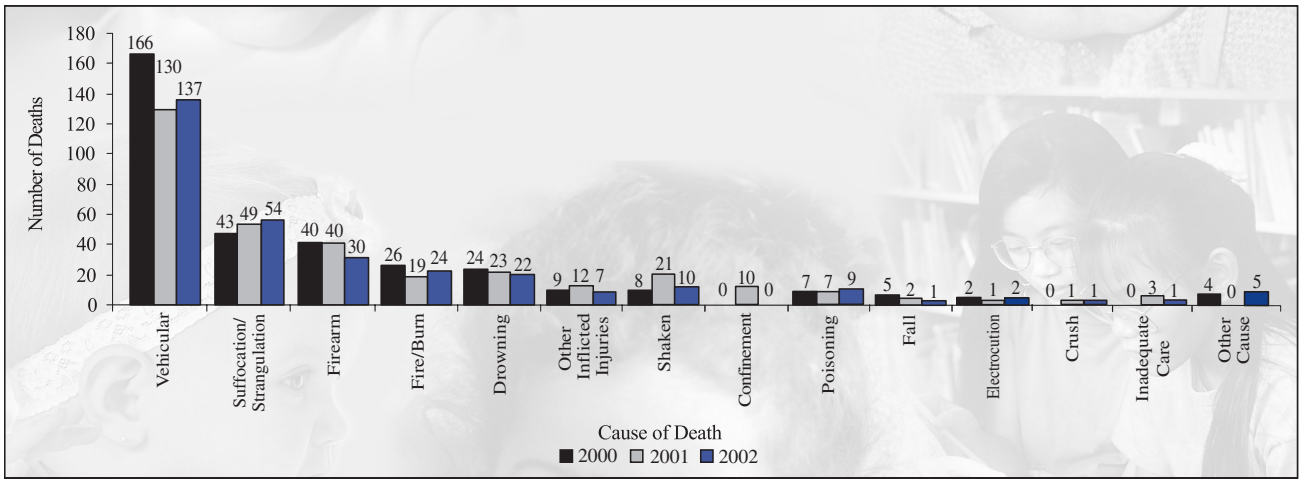


Figure 5. Leading Cause of Injury Deaths



Prevention Findings: The Final Report

"Injury is a problem that can be diminished considerably if adequate attention and support are directed to it. Exciting opportunities to understand and prevent injuries and to reduce their effects are at hand. The alternative is the continued loss of health and life to predictable, preventable and modifiable injuries."

-Dr. William Foege, Former Director of the Centers for Disease Control and Prevention

The difference between a fatal and nonfatal event is often only a few feet, a few inches, or a few seconds. In the past, most people believed that serious and fatal injuries were random or unavoidable events, or simply the result of individual carelessness. Fortunately, the science of injury prevention has moved away from this fatalistic approach to one that focuses on the environment and products used by the public, as well as individual behavior. Injuries are now widely recognized as understandable, predictable and preventable.

A *preventable child death* is defined as one in which awareness or education by an individual or the community may have changed the circumstances that lead to the death. Prior to August 2000, CFRP panels were asked to report their conclusions and prevention responses for each death reviewed on the Data Form 2. Legislation passed in 2000 now requires that the panel complete a Final Report, summarizing their findings in terms of circumstances, prevention messages, and community-based prevention initiatives.

The death of a child is a sentinel event that captures the attention of the community, creates a sense of urgency and a window of opportunity to respond to the question, "What can we do?" County-based prevention activities serve to raise awareness, educate parents and caretakers, influence public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2002, CFRP panels throughout our state reported their findings and prevention responses utilizing the Final Report. The initiatives highlighted below demonstrate how a few volunteer professionals have been able to measurably reduce or eliminate threats to the lives and well being of countless Missouri children.

Legislation, Law or Ordinance:

A newborn infant died during a home birth attended by a midwife. The panel suggested that the state should address standards and licensing of midwives in Missouri. The panel also wanted to find out the prevalence of midwife births and recommended legislative action.

Community Safety Project:

A 17-year-old boy was killed by rival gang members in a fight. The panel suggested that the community support efforts aimed at the prevention of gang-related activity, encourage parenting skills and parental involvement with adolescent children.

A 4-year-old girl and her family were killed in a house fire. There were no working smoke alarms in the home. The local CFRP panel worked with the local fire department to canvass the community with free smoke detectors and offered free installation for families that could not install the smoke detectors for themselves.

Public Forums:

A 16-year-old boy died of a self-inflicted gunshot wound to the head. The local panel participated in a public meeting with the schools and parents regarding suicide prevention. During the meeting, they discussed the need to identify students at risk and provide counseling for those who are having difficulties in school and the community.

A 2-year-old girl was killed by her mother's paramour. The panel and the local safety coalition suggested that the county health department and law enforcement distribute educational information about good childcare choices. They also wanted to inform the community regarding child abuse and neglect awareness.

Educational Activities in Schools:

A 13-year-old boy was struck by a pickup truck while he was crossing the street on his bicycle. The panel contacted area schools and asked that bicycle safety programs be brought into the schools.

A 17-year-old girl was killed in a motor vehicle accident. She was not wearing her seatbelt. The local panel drafted an article regarding effectiveness of seatbelts and submitted it to the local schools for distribution.

Educational Activities in the Media:

A 15-year-old boy was struck by a vehicle while riding his bike along the road. He was not wearing a helmet. The panel contacted the local television station and suggested a story on the importance of wearing helmets when riding bicycles.

A 6-month-old boy was found unresponsive by his babysitter after being put to sleep on a couch cushion. The local panel suggested that the media, both television and newspaper, run stories regarding the safe sleep practices for infants and the hazards of placing children to sleep in unsafe environments. They also asked that Safe Sleep brochures be given out at local health departments, clinics and Children's Division offices.

Consumer Product Safety:

A 10-month-old infant girl was found unresponsive in her crib with a blanket covering her face. The panel contacted the Consumer Product Safety Commission regarding a Safe Sleep campaign involving parent education in local hospitals.

News Services:

A 9-year-old girl died of acute carbon monoxide intoxication. The gas generator being used by the family was not properly ventilated. The panel approached the media about running an article regarding the proper use of gas generators and proper ventilation practices.

A 13-year-old girl died of an Oxy-Contin overdose. The local panel contacted the local television station to run a story on the dangers of Oxy-Contin and drug use in general.

Changes in Agency Practice:

A 1-year-old male was brought to the emergency room unresponsive and not breathing. The child's death was ruled homicidal asphyxiation by the medical examiner and his mother was charged with murder. The panel contacted the local hospitals asking that they encourage their emergency room staff to carefully evaluate for child abuse and neglect.

An 8-month-old boy was put to bed on his stomach and was found the next morning unresponsive. The panel contacted the local hospital to suggest that parents should be made aware of Safe Sleep practices before leaving the hospital.

A 3-year-old boy drowned after falling off a fishing dock. The local panel approached law enforcement about requiring handrails on the back part of main docks before dock permits could be issued or renewed.

Other Programs/Activities:

A 2-year-old girl and her mother died in an apartment fire. The panel discussed the possibility of having landlords cited for not insuring that smoke alarms were in working order at all times. The landlord in this case was cited for not having working smoke alarms in his properties.

A 4-year-old boy choked on an object lodged in his throat. The local panel suggested that the fire department provide a class for parents on the Hiemlich Maneuver and CPR.

"Alone we can do so little; together we can do so much."

-Helen Keller

SECTION TWO:
Illness/Natural Cause Deaths

All Illness/Natural Cause Deaths Other Than SIDS

"The infant mortality rate has declined steadily during the last decade, due, in part to improved medical technology and public health outreach...Infants are more likely to die before their first birthday if they live in unsafe homes and neighborhoods or have inadequate nutrition, health care or supervision."

-Kids Count Missouri, Citizens for Missouri's Children and Children's Trust Fund

Illness/natural cause, other than SIDS, were responsible for the death of 685 Missouri children in 2002, representing 63% of all Missouri incident fatalities.

Illness/natural cause deaths include prematurity, congenital anomalies, infection and other conditions. Most child deaths are related to illness or other natural cause. The vast majority of natural cause deaths occur before the first year of life and are often related to prematurity or birth defects. Sudden Infant Death Syndrome (SIDS), a natural death, is discussed in the section that follows.

Figure 6. Illness/Natural Cause Deaths by Age

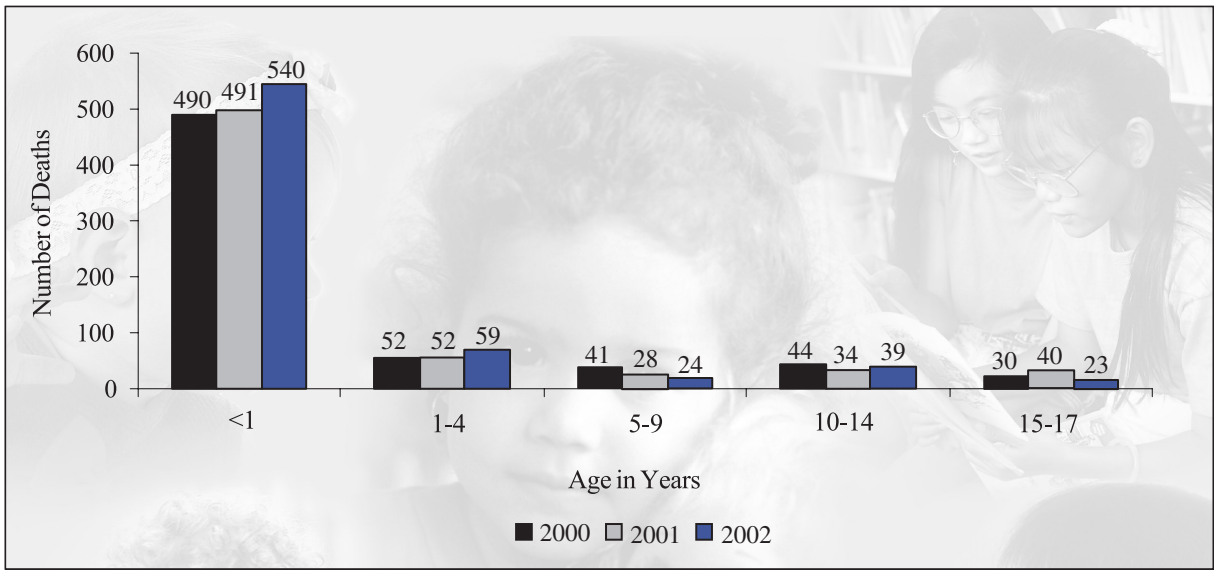


Figure 7. Illness/Natural Cause Deaths by Sex and Race

Sex	2000	2001	2002	Race	2000	2001	2002
Female	307	268	316	White	462	433	471
Male	350	377	369	Black	188	201	202
				Other	7	11	12
	657	645	685		688	657	685

Infants less than one year of age comprised the majority (79%) of illness/natural cause deaths in 2002 with **540**. Of those, **335** occurred within the first three days of life; **249** (74%) of those occurred within 24 hours of birth.

Figure 8. Children Age Three Days or Less That Died of Illness/Natural Causes

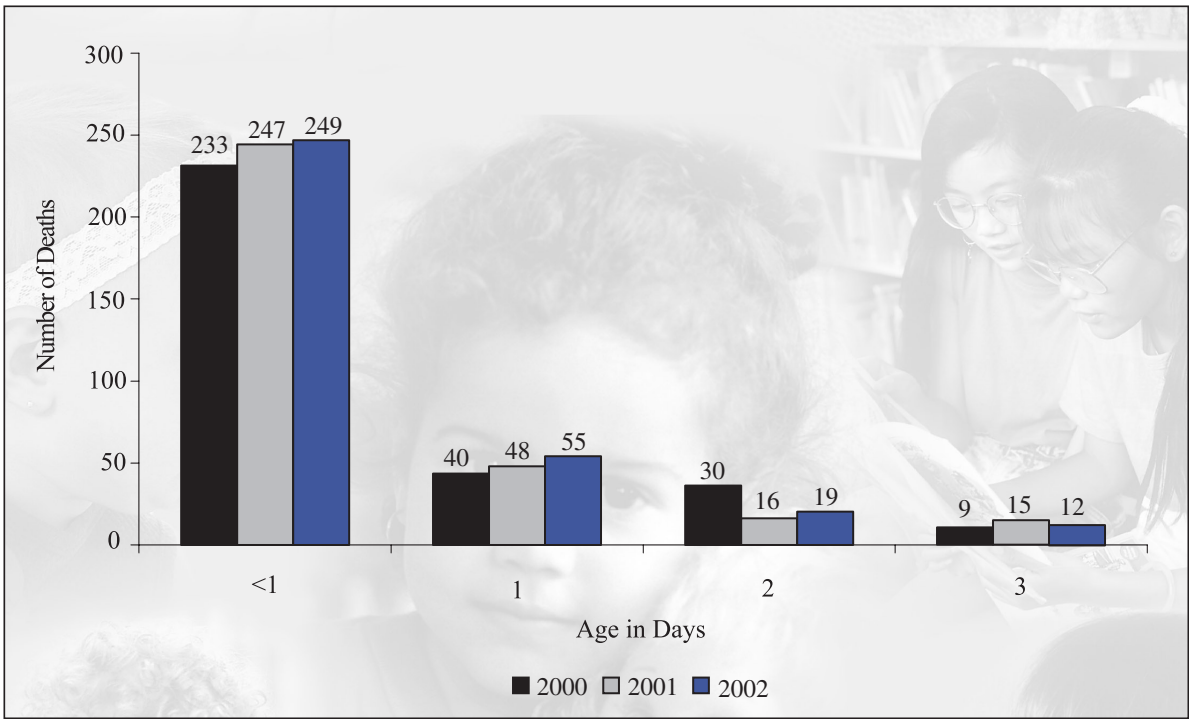


Figure 9. Children Less Than One Year That Died of Illness/Natural Causes by Sex and Race

Sex	2000	2001	2002	Race	2000	2001	2002
Female	226	200	248	White	331	305	371
Male	264	291	292	Black	152	177	157
				Other	7	9	12
	490	491	540		490	491	540

Natural Cause Deaths in Infants Less Than One Year as Reported on CFRP Data Forms

Age at death		Gestational age at birth	
0 - 24 hours	295	<25 weeks	221
24 - 48 hours	18	25 - 30 weeks	87
48 hours - 6 weeks	128	30 - 37 weeks	60
6 weeks - 6 months	49	>37 weeks	58
6 months - 1 year	20	Unknown	79
Not Answered	30	Not Answered	35

Note: Of the 221 listed as less than 25 weeks gestation, 89 (40%) of them were 20 weeks or less.

Birth weight in grams (approximate lbs/oz)		Multiple births	
<750 (<1 lb 10 oz)	223	Yes	87
750 - 1,499 (1 lb 10 oz - 3 lbs 5 oz)	62	No	392
1,500 - 2,499 (3 lbs 5 oz - 5 lbs 5 oz)	38	Not Answered	61
>2,500 (>5 lbs 5 oz)	65		
Unknown	102		
Not Answered	50		

Medical complications during pregnancy		Smoking during pregnancy		Drug use during pregnancy		Alcohol use during pregnancy	
Yes	23	Yes	18	Yes	10	Yes	1
No	12	No	11	No	18	No	14
Unknown	15	Unknown	22	Unknown	23	Unknown	36

Fetal and Infant Mortality Review in Missouri

The death of a child, especially the youngest, most vulnerable infant, is viewed as a sentinel event that is a measure of a community's overall social and economic well being as well as its health. During the last decade, two methods for examining these sentinel deaths at the local level have emerged: child fatality review (CFR) and fetal and infant mortality review (FIMR).

In 1991, Missouri initiated the most comprehensive child fatality review system in the nation. While the Missouri Child Fatality Review Program (CFRP) has evolved and adapted to meet new challenges, the objectives have remained the same-identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies, following a public health prevention model. In Missouri, all child fatality data is collected by means of standardized forms and entered into a database. What is learned can be used immediately by the community where the death occurred. The sum of statewide data is used to identify trends and patterns requiring systemic solutions.

The Missouri Department of Health and Senior Services (DHSS) has been a key partner in the development and implementation of statewide prevention initiatives that protect and improve the lives of Missouri children. DHSS is now collaborating with the March of Dimes, lead agency for the St. Louis Maternal, Child and Family Health Coalition, and SIDS Resources, Inc. doing business as Bootheel Healthy Start, to develop fetal and infant mortality review (FIMR) in limited Missouri sites. Initial sites include selected zip codes in the St. Louis region and five counties in the Bootheel region; a Kansas City site is also under development.

Fetal and Infant Mortality Review (FIMR)

Fetal mortality is defined as the death of a fetus in utero at 20 weeks or more gestation. It is viewed as an important indicator of overall perinatal health. The health of the mother plays a significant role in maintaining a healthy pregnancy. Conversely, maternal medical complications of pregnancy are adversely associated with fetal deaths.

Infant mortality is defined as the death of a child before one year of age. The infant mortality rate is associated with a variety of social and economic factors, as well as medical/health conditions. Nationally, two-thirds of these deaths occur during the first 28 days of life, the neonatal period.

The FIMR process in our state conforms to the principles and guidelines set by the National Fetal and Infant Mortality Review Program, which is a collaborative effort between the American College of Obstetricians and Gynecologists and the Maternal and Child Health Bureau, Health Resources and Service Administration. The overall goal of Fetal and Infant Mortality Review (FIMR) is to enhance the health and well being of women, infants and families by improving the community resources and service delivery systems available to them.

Many sources provide information for FIMR reviews. A maternal interview is sought from the family. Medical records, including hospital and physician records, as well as any existing medical examiner records are abstracted. All identifying information; i.e., families, providers, and institutions, is removed. A summary of the case is prepared and presented to the case review team. Members of the FIMR case review team represent a broad range of professional organizations and public and private agencies (health, welfare, education and advocacy) that provides services and resources for women, infants and families. The reviews produce findings and recommendations that, typically, are presented to a community action team, comprised of other members of the community with the political will and fiscal resources to create large-scale system changes.

The rate of death among infants in Missouri has shown a steady decline during the last decade, from 9.6 to 7.5 per 1,000 live births (DHSS). In most communities, infant deaths due to natural causes such as prematurity, congenital anomalies, SIDS, infection, and other disease processes have traditionally been viewed as medically complicated and not preventable. Indeed, they are medically complicated, but research and experience have demonstrated that improvements in resources and systems that serve the needs of infants, mothers and families can produce significant improvements in outcomes. The emergence of FIMR in our state has the potential to bring about significant improvements in maternal and infant outcomes, and further reduce infant deaths.

While there are many similarities between CFRP and FIMR, there are distinct and important differences, including basic human concern and advocacy. In Missouri, FIMR and CFRP will be distinct, but complementary systems, sharing a common mission and some promising opportunities for collaboration. It is anticipated that, when appropriate, the two systems will be able to collaborate in significant ways, such as joint reporting of aggregate findings, sharing recommendations with media and the public, and improving systems and resources for children, mothers and families.

Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) was the cause of death of 69 Missouri infants in 2002, representing 13% of all natural cause deaths of infants less than 1 year of age.

Representative Cases:

- **Infants should be placed on their backs to sleep.**

  A 6-month-old male infant was placed on his side in a playpen for a nap. Several hours later, he was found face down and unresponsive.

  A 3-month-old infant girl was put to bed on her stomach on top of a comforter. When her mother checked on her the next morning, she was lifeless.

  A father placed his 2-month-old son in his crib on his stomach with his face turned to the side. Two hours later, he discovered the baby cold and not breathing.

- **The safest place for infants to sleep is in a standard crib with a firm mattress and no soft bedding.**

  An 8-month-old infant girl was placed face down in her portable playpen with an adult-sized pillow, a blanket, small doll and bottle. She was found unresponsive in the same position several hours later.

  A 4-month-old infant boy became fussy during the night because of teething problems. He was put in bed with his mother, sister and cousin. He was found unresponsive the next morning with his face down in the mattress.

  An 8-day-old infant girl was found unresponsive and blue on the family room floor. She had been put to sleep the night before on several blankets, with her four other siblings.

Sudden Infant Death Syndrome (SIDS) is the sudden, unexpected death of an apparently healthy infant under one year of age, which remains unexplained after the performance of a complete post-mortem evaluation/investigation that includes an autopsy, investigation of the scene of death and review of the case history. SIDS is characterized by the sudden death of an infant during a sleep period. SIDS is a diagnosis of exclusion; there are no pathological markers that distinguish SIDS from other causes of sudden infant death. There are no known warning signs or symptoms. Ninety percent of SIDS deaths occur in the first six months of life, with a peak at 2-4 months. While there are several known risk factors, the cause or causes of SIDS are unknown at this time.

The Triple Risk Model for SIDS is often used to describe the confluence of events that may lead to the sudden death of an infant. This model involves a vulnerable infant, (one with a subtle defect involving brainstem arousal responses) at a critical developmental period (less than six months of age), exposed to environmental challenges to which he/she does not respond (such as overheating, tobacco smoke, or prone sleeping).

SIDS is generally considered a natural manner of death. SIDS is not caused by spitting up, choking or minor illnesses, such as a cold. SIDS is not caused by immunizations; it is not contagious; SIDS is not child abuse. SIDS is not the cause of every sudden or unexpected infant death. In fact, of the **130** sudden unexpected deaths of infants under the age of one year reported to the Child Fatality Review Program in 2002, **69** were diagnosed as SIDS following autopsy, investigation and panel review. The cause of death for the remaining **61** infants included **20** illness/natural cause, **3** homicides, **22** unintentional suffocations, **15** undetermined, and **1** pending further investigation.

Figure 10. SIDS Fatalities by Age

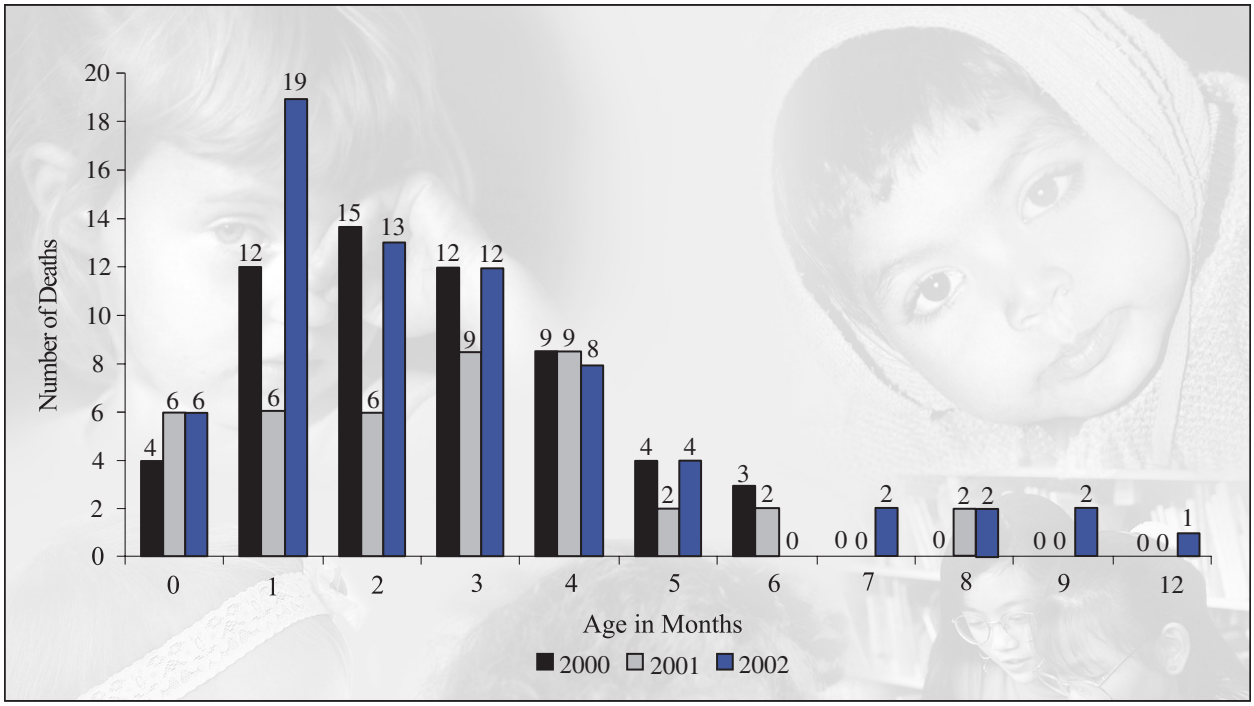


Figure 11. SIDS Fatalities by Sex and Race

Sex	2000	2001	2002
Female	25	24	24
Male	34	18	45
	59	42	69

Race	2000	2001	2002
White	41	31	45
Black	18	10	24
Other	0	1	0
	59	42	69

Figure 12. SIDS Rate 2000-2002

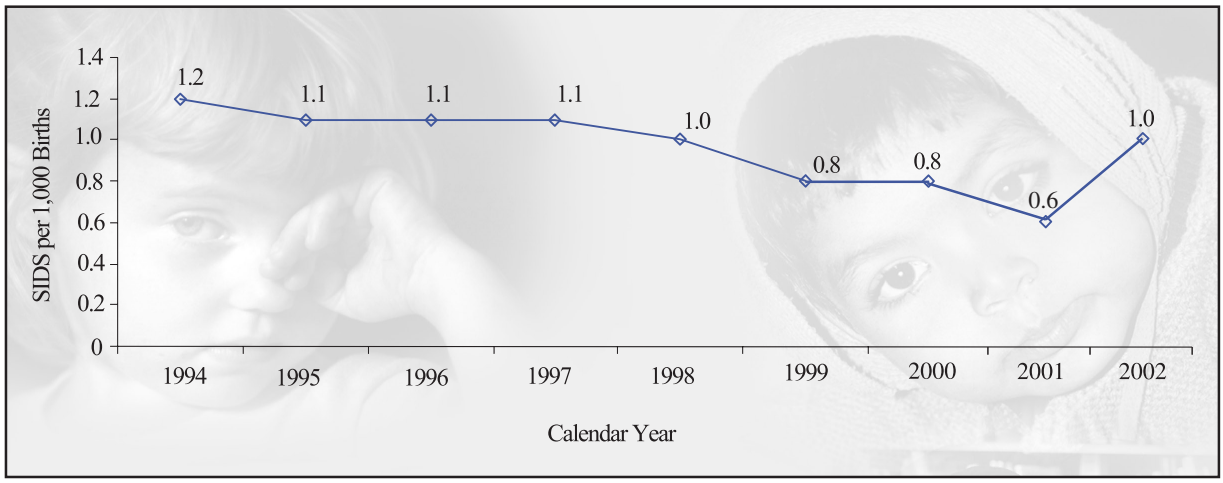
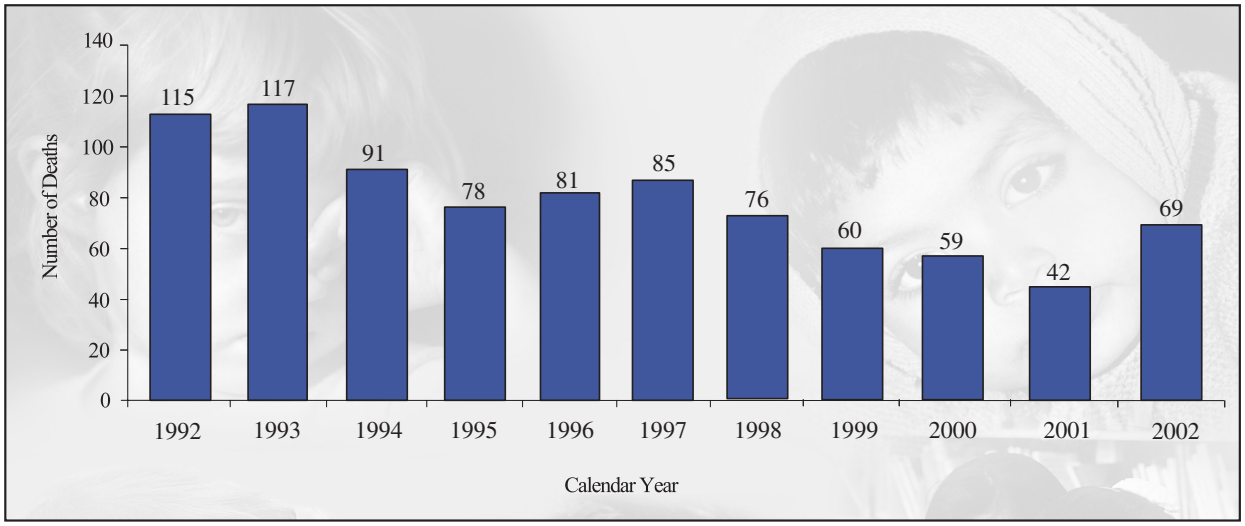


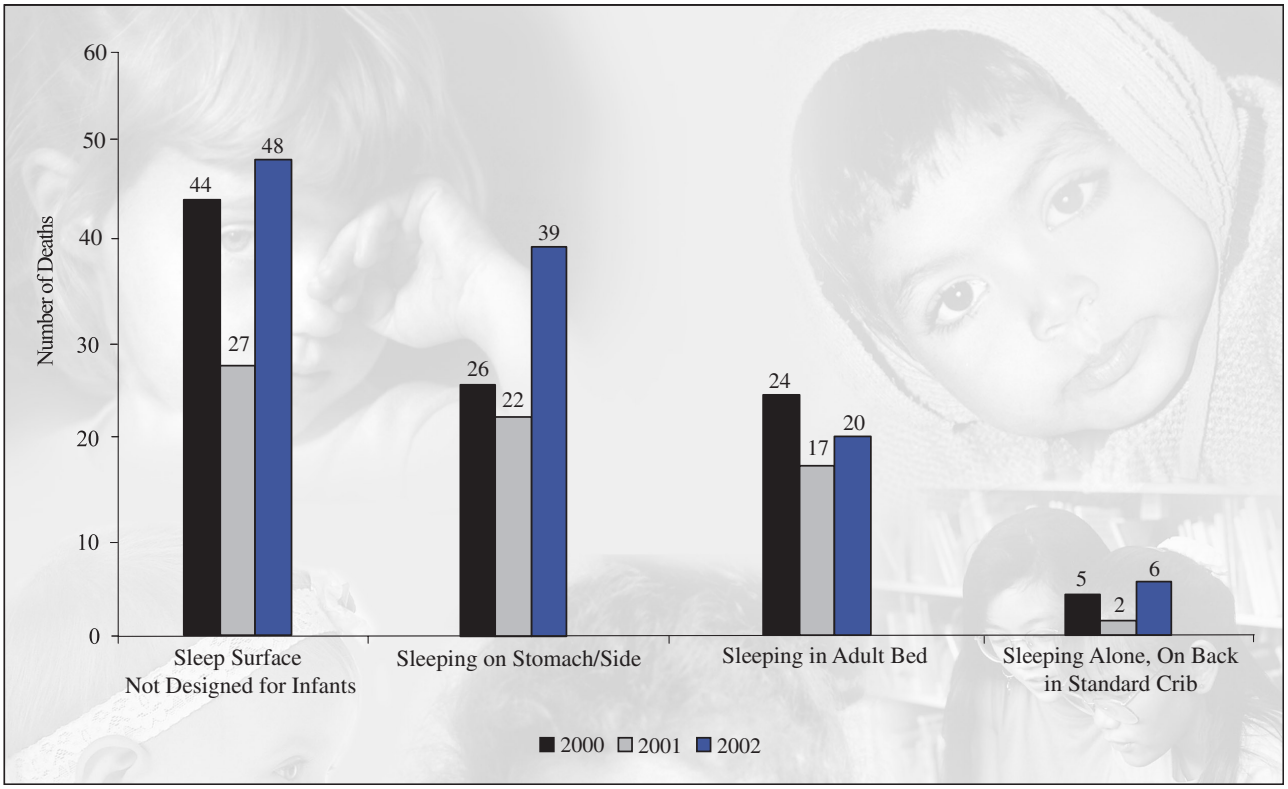
Figure 13. Missouri SIDS Deaths 1992-2002



Recent research findings have resulted in accelerated progress in the understanding of sudden unexpected infant death. Unsafe sleep arrangements are now known to be a highly significant risk factor occurring in the large majority of cases of sudden infant death diagnosed as SIDS, unintentional suffocation and cause undetermined. Unsafe sleep arrangements include any sleep surface not designed for infants, sleeping with head or face covered, and sharing a sleep surface.

In Missouri, of the **69** sudden unexpected infant deaths reviewed by county panels and diagnosed as SIDS in 2002, **39** (57%) were known to be sleeping on their stomach or side. **Forty-eight** (70%) of those infants were not sleeping in a standard crib on a firm mattress. **Twenty** (29%) were sleeping in an adult bed. *Only **6** (9%) sudden infant deaths diagnosed as SIDS, were known to be sleeping alone on their backs in a standard crib with head and face uncovered.*

Figure 14. Missouri SIDS Deaths, 2000-2002: Sleep Environment



"Infant mortality is the most sensitive index we possess in social welfare."

-Julia Lathrop
Children's Bureau, 1913

A SAFE SLEEPING ENVIRONMENT FOR YOUR BABY

The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep. Here are the revised recommendations to follow for infants under 12 months:

Safe Bedding Practices For Infants

- Place baby on his/her back on a firm tight-fitting mattress in a crib that meets current safety standards.
- Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
- Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
- If using a blanket, put baby with feet at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching only so far as the baby's chest.
- Make sure your baby's head remains uncovered during sleep.
- Do not place baby on a waterbed, sofa, soft mattress, pillow or other soft surface to sleep.

Placing babies to sleep on their backs instead of their stomachs, has been associated with a dramatic decrease in deaths from Sudden Infant Death Syndrome (SIDS). Babies have been found dead on their stomachs with their faces, noses and mouths covered by soft bedding, such as pillows, quilts, comforters and sheepskins. However, some babies have been found dead with their heads covered by soft bedding, even while sleeping on their backs.

Risk Reduction Recommendations:

The following risk reduction recommendations are from SIDS Resources, Inc., the SIDS Alliance and the American Academy of Pediatrics.

For parents:

- *Sleep position:* Infants should be placed on their backs to sleep throughout the first year of life.
- *Bedding:* Avoid soft bedding. Place baby on a firm tight-fitting mattress in a crib that meets current safety standards. Avoid placing the baby on soft quilts or comforters, sofas, pillows, waterbeds or sheepskins. Stuffed animals should not be placed in the crib with the baby. Avoid using bumper pads.
- *Temperature:* To avoid overheating, do not overdress the baby or over-bundle the baby.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. Some researchers have found that breastfeeding is a protective factor for SIDS.
- *Prenatal care and well-baby care.*

For community leaders and policy makers:

- *Support Safe-Sleep campaigns.*

For professionals:

- Newborn nursery personnel, physicians, nurses and public health officials should instruct all new parents and child care personnel in safe sleeping practices and other strategies to reduce the risk of SIDS.

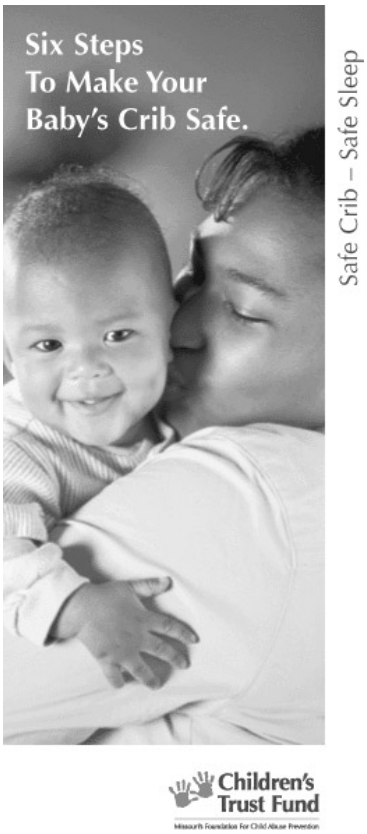
For Child Fatality Review Panels:

- All sudden, unexplained deaths of infants <1 year of age require autopsy by a child death pathologist and review by a county CFRP panel. The data pertaining to infant deaths is critical in identifying risk factors for SIDS and providing targeted prevention messages for parents.

Something We Can Do: The Safe Crib-Safe Sleep Campaign

The safest place for an infant to sleep is in a standard crib, on his or her back without soft bedding or toys of any kind. The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep to incorporate this new information. Unfortunately, many parents have not received this information and, for a variety of reasons, are unable to provide a safe crib for their infant.

The Safe Crib Project provides a safe, new crib to families in need, along with critical parent education about safe sleep arrangements for infants. In communities throughout Missouri, social service agencies, community health agencies, hospitals and similar organizations have collaborated to implement the Safe Crib Project, using funding from Children's Trust Fund. The goal of this innovative project is to save infant lives and support families. For additional information about Children's Trust Fund, active Safe Crib Projects or funding opportunities, please contact Children's Trust Fund at 573-751-5147 or visit www.ctf4kids.org.



Resources and Links:

Safe Bedding Practices for Infants:	
Consumer Product Safety Commission	www.cpsc.gov
American Academy of Pediatrics	www.aap.org
SIDS Resources, Inc., 143 Grand, St. Louis, MO 63122 Counseling and support, research, training and education throughout Missouri.	www.sidsresources.org 800-421-3511
Children's Trust Fund "Safe Crib-Safe Sleep" Campaign	www.ctf4kids.org 573-751-5147
Sudden Unexpected Infant Death: A Guide for Missouri Coroners and Medical Examiners	www.dss.mo.gov/stat/suid.pdf

SECTION THREE:
Unintentional Injury Deaths

Unintentional injuries were responsible for the deaths of 232 Missouri children in 2002, representing 21% of all Missouri incident fatalities.

Unintentional injuries are the leading killer of children ages 1-17. Each year in the United States, approximately 7,200 children ages 14 and under are killed, and 50,000 are permanently disabled. More children, ages 1-17, die from unintentional injuries than from all childhood diseases combined. Injury is the leading cause of child hospitalization. For every child who dies from a preventable injury, 40 others are hospitalized and 1120 are treated in emergency rooms. (*Children's Safety Network*)

Motor Vehicle Fatalities

There were 137 motor vehicle fatalities among Missouri children in 2002, which represents 59% of all unintentional injury deaths.

"We use the term 'crash' instead of 'accident' because we want people to realize that when cars run into each other, or run off the road and hit something or crash into something it is almost always caused by driver error - it is seldom an 'accident'"

- Missouri State Highway Patrol

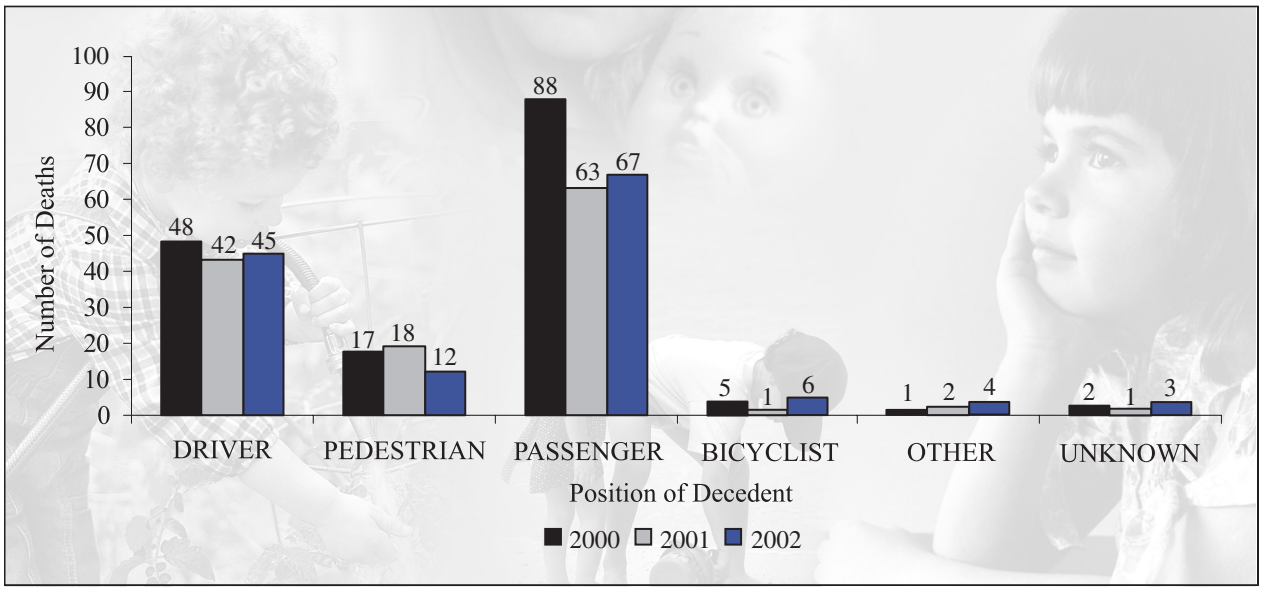
Motor vehicle crashes remain the leading cause of unintentional injury deaths among Missouri's children, ages 1-17. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles, bicyclists and occupants of any other form of transportation. Of the **137** motor vehicle deaths among Missouri children in 2002, **109** (80%) were reviewed by county panels.

Figure 15. Motor Vehicle Fatalities by Sex and Race

Sex	2000	2001	2002
Female	63	52	57
Male	98	75	80
	161	127	137

Race	2000	2001	2002
White	143	108	115
Black	16	18	20
Other	2	1	2
	162	127	137

Figure 16. Motor Vehicle Fatalities by Position at Time of Injury



Motor Vehicle Fatalities as Reported on CFRP Data Forms

Type of vehicle			
Car	63	Other farm vehicle	0
Truck/RV/Van	33	All-terrain vehicle	4
Motorcycle	3	Semi/Tractor trailer unit	1
Bicycle	5	Other	2
Riding mower	0	Unknown	7
Farm tractor	1	Non-applicable	18

Conditions of road	
Normal	91
Loose gravel	7
Wet	9
Ice or snow	4
Other	5
Unknown	8

Restraint used	
Present, not used	58
None in vehicle	2
Used correctly	20
Used incorrectly	1
Unknown	16
Not applicable	28
Not Answered	12

Primary cause of accident	
Speeding	32
Carelessness	24
Mechanical failure	4
Weather	7
Driver error	31
Other	20
Unknown	7
Not Answered	12

Alcohol and/or other drug use	
Decedent impaired	7
Driver of decedent's vehicle impaired	1
Driver of other vehicle impaired	3
Not applicable	83
Not Answered	43

Helmet Used - Bicycle	
Helmet worn	1
Helmet not worn	11
Not applicable	113
Not Answered	12

Driver and Passenger Fatalities

Representative Cases:

- **Children age 4 years and under should ride appropriately restrained in a child safety seat.**

  A 3-year-old male was riding in the rear of the vehicle being driven by his mother's paramour. The vehicle was struck on the passenger side after pulling in front of oncoming traffic. The child was ejected, resulting in fatal injuries. He and the car seat were both unrestrained at the time of the accident.

- **The most significant risk factors among teen drivers are inexperience, low rates of seatbelt use and alcohol.**

  A 17-year-old male driver lost control of his vehicle on a curve while traveling at a high rate of speed. He was not wearing a seatbelt and had a blood alcohol content of .128%. He died instantly.

Of the **137** motor vehicle deaths in Missouri in 2002, **112** involved drivers and passengers. The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor vehicle-related fatalities among children: (1) unrestrained children and (2) drunk drivers. ("Unrestrained children" refers to infants and toddlers who are not riding in properly installed car seats and older children whose seatbelts are not fastened.)

The National Safe Kids Campaign reports that 40% of children age 4 and under ride unrestrained, placing them at twice the risk of death and injury as those riding restrained. Missouri law requires restraint for children under age 4 and allows for primary enforcement, meaning that a police officer can stop and cite the driver solely for violation of the restraint law. **Thirty-seven** of the child passenger fatalities in Missouri in 2002, were known to be riding unrestrained. **Three** of those were children age 4 and under. The most common reasons restrained children are killed are misuse of child safety seats and premature graduation to safety belts.

Alcohol interferes with driving because it impairs the driver's mental and physical abilities. Of the **109** motor vehicle fatalities reviewed in 2002, **9** involved a driver impaired by alcohol. **One** of those fatalities involved a teen riding with a driver who was impaired; **5** involved a teen driver impaired by alcohol.

Teenagers are three to four times more likely to be involved in a crash than the driving population at large. The highest fatality rates are found among teenage drivers. According to the National Center for Injury Prevention and Control, the most significant risk factors among teenage drivers are inexperience, low rates of seatbelt use and alcohol. Inexperienced drivers lack the perception, judgement and decision-making skills that take practice to acquire.

Missouri's graduated licensing system took effect in January 2001. In states with GDL systems, teen fatality rates have been reduced as much as 43%. It is important to note, however, that graduated licensing must be combined with education for parents and teens about risks to teenage drivers, including the dangers of underage drinking, speeding, inattention and low seatbelt use.

Seatbelts are known to reduce the risk of a fatal motor vehicle injury by as much as 45%. There is a low rate of seatbelt use among teens. **Sixty-six** (48%) of motor vehicle fatalities among children in Missouri in 2002, were teenagers age 15-17. Of those, **44** (67%) were known to be unrestrained at the time of the crash.

Pedestrian Fatalities

Representative Cases:

- **Young children require constant supervision.**

  A 7-year-old male was playing outside unsupervised. A vehicle traveling at a high rate of speed struck and killed the child when he ran into the street to retrieve his ball.

  A 22-month-old female followed her older siblings outside unnoticed. She was struck and run over by a vehicle backing out of the driveway.

Of the **137** motor vehicle fatalities among Missouri children in 2002, **12** were pedestrians. **Three** of those were age 4 and under; **3** were between the ages of 5 and 9.

Pedestrian Deaths among Children

- Children are particularly vulnerable to pedestrian death, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. This is exacerbated by the fact that parents overestimate their children's pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance.
- Toddlers (ages 1 and 2 years) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all pedestrian injuries involving toddlers occur when a vehicle is backing up. Young children are at increased risk of pedestrian death and injury in driveways and other relatively protected areas.
- Children, age 5 through 9, are at the greatest risk from pedestrian death and injury. Children, ages 14 and under, are more likely to suffer pedestrian injuries in residential areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, few pedestrian-control devices and few alternative play areas.
- Practical, skills-based pedestrian safety training efforts have demonstrated improvements in children's traffic behavior. Environmental modifications are effective at reducing pedestrian-motor vehicle-related incidents. *(Safe Kids)*

Bicycle-related Fatalities

Representative Cases:

- **Children should always wear helmets when riding bicycles.**

  A 10-year-old male was riding his bike on the sidewalk near his home. As he approached an alleyway, a car suddenly emerged from the alley, striking the child. He died of severe head trauma. He was not wearing a helmet.

Motor vehicle fatalities among Missouri children also include **7** bicyclists who died in 2002, when they were either struck by a motor vehicle or fell. **Six** of those fatalities were reviewed by local panels. None of the bicycle-related fatalities were reported to be wearing a helmet.

The single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet. In the event of a crash, wearing a bicycle helmet reduces the risk of serious head injury by as much as 85% and the risk for brain injury by as much as 88%. Unfortunately, national estimates on helmet usage suggest that only 25% of children, ages 5-14, wear a helmet when riding. Helmet usage is lowest among children ages 11 to 14. *(Safe Kids)* The primary strategies to increase bike helmet use include education, legislation and helmet-distribution programs. (*National Center for Injury Prevention and Control*)

Fatalities Involving All-Terrain Vehicles

Representative Cases:

- **Children younger than 16 should not ride adult-size all-terrain vehicles.**

  A 9-year-old male was riding his all-terrain vehicle (ATV) with a friend on his family's farm. The ATV rolled over, landing on top of the child. He died of massive chest and head injuries. He was not wearing a helmet.

- **Children should always wear motorcycle-style helmets when riding ATV's.**

  A 16-year-old female was riding her cousin's ATV on a rural road. She lost control of the ATV and was thrown, hitting a tree. She was not wearing a helmet and died from massive head trauma.

Four of the **109** motor vehicle fatalities reviewed in 2002, involved all-terrain vehicles. Only **one** of those four children was reported to be wearing a helmet.

All-terrain vehicles (ATVs) are motorized cycles, with 3 or 4 balloon-style tires, designed for off-road use on a variety of terrains. Although ATVs give the appearance of stability, the 3-wheeled design is especially unstable on hard surfaces. The ATV stability is further compromised by a high center of gravity, a poor or absent suspension system, and no rear-wheel differential. The danger is magnified because these vehicles can attain substantial speeds (30-50 mph). Most injuries involving ATVs occur when the driver loses control and the vehicle rolls over, the driver or passenger is thrown off, or there is a collision with a fixed object.

Despite a significant reduction in ATV-related injuries and deaths since the mid-1980's, children under the age of 16 accounted for 47% of injuries and 36% of the deaths from 1985 through 2001. Head injuries account for most of the deaths, which are usually instantaneous.

In June 2000, the American Academy of Pediatrics (AAP) issued a policy statement with recommendations for public, patient, and parent education by pediatricians; equipment modifications; the use of safety equipment; and the development and improvement of safer off-road trails and responsive emergency medical systems. The AAP also recommended legislation in all states prohibiting the use of 2 and 4-wheeled off-road vehicles by children younger than 16 years, as well as a ban on the sale of new and used 3-wheeled ATV's.

Prevention Recommendations:

For parents:

- Children, 12 years old and younger, should always ride appropriately restrained in the back seat of all passenger vehicles, particularly vehicles with airbags.
- Never allow children under age 12 to cross streets alone.
- Always model and teach proper pedestrian behavior.
- Never leave children alone in a motor vehicle, even when they are asleep or restrained.

For community leaders and policy makers:

- Community leaders should encourage enforcement of existing child restraint laws.
- Missouri lawmakers should strengthen child restraint laws by mandating the following:
  - Include children age 4 through 15 in the child restraint law, thereby making restraint use in the age group subject to primary enforcement.
  - Raise the penalty for violation of child restraint laws to at least $100 and one driver's license point.
  - Remove the provision of the vehicle equipment regulations that states that if there are not enough safety belts for all passengers, they are not in violation for failure to use.

For professionals:

- Facilitate and implement programs that educate parents on appropriate restraint of children in motor vehicles, and provide child safety seats to those who do not have them, such as safety seat check-up events.
- Facilitate and implement programs that educate parents and children on helmet use, instructions on fitting helmets properly and events that provide helmets at little or no cost.

For Child Fatality Review Panels:

- Ensure that speed limits, and laws prohibiting driving while intoxicated, along with other traffic safety laws, are strictly enforced.

Resources and Links:

American Academy of Pediatrics . . . . . .www.aap.org
Children's Safety Network . . . . . .http://research.marshfieldclinic.org
National Safe Kids Campaign . . . . . .www.safekids.org
National Center for Injury Prevention and Control . . . . . .www.cdc.gov/ncipc
Harborview Injury Prevention and Research Center . . . . . .http://depts.washington.edu
National Highway Transportation Safety Administration . . . . .www.nhtsa.dot.gov
Stop the Knock . . . . . .www.mshp.state.mo.us (contact the appropriate headquarters)
Think First . . . . . .www.thinkfirst.org
Kids 'N Cars . . . . . .www.kidsncars.org

Keeping Children Safe In and Around Motor Vehicles

Attention concerning child safety and motor vehicles has focused largely on protecting children as they ride in and on vehicles of all kinds, primarily motor vehicles on public roads. The Missouri CFRP reviews and collects data on motor vehicle fatalities among children as passengers and drivers, pedestrians and bicyclists. However, children who are unsupervised in or around motor vehicles that are not in traffic are at increased risk for injury and death.

The Centers for Disease Control (CDC) examined injuries and fatalities among children involved in nontraffic motor vehicle-related incidents from July 2000-June 2001 and documented 78 fatal injuries. Of the fatally injured children, most were age <4 years. The most common type of fatal incident was exposure to excessive heat inside a motor vehicle, followed by being backed over and being hurt when a child put a motor vehicle in motion.

The CDC study recommended several areas for possible prevention, including education campaigns aimed at parents and caregivers that communicate the following: (1) Ensure adequate supervision when children are playing in areas near parked motor vehicles. (2) Never leave children alone in a motor vehicle, even when they are asleep or restrained. (3) Keep motor vehicles locked in a garage or driveway and keep keys out of children's reach.

Kids 'n Cars maintains a national database to evaluate the circumstances and consequences of leaving children unattended in or around motor vehicles. Go to www.kidsncars.com for more information.

Something We Can Do: "Not Even for a Minute" Campaign

Children's Trust Fund points out that a child left alone in an automobile is a car accident that can be prevented. For additional information or to order education materials contact CTF at 573-751-5147 or visit the web site at www.ctf4kids.org.

Resources and Links:

CDC. Injuries and Deaths Among Children Left Unattended in or Around Motor Vehicles-United States, July 2000-June 2001. MMWR 2002;51:No.26.

Kids 'n Cars.....www.kidsncars.com

Unintentional Suffocation/Strangulation

Unintentional Suffocation/Strangulation was the cause of 35 deaths of Missouri children in 2002, representing 15% of unintentional injury deaths.

Representative Cases:

- **The safest place for infants to sleep is in a standard crib, on their backs with no soft bedding.**

  A 4-month-old male was found on a couch, facing the back of the couch. He was unresponsive and blue. It was later learned that an adult relative had slept with the child on the couch for most of the night. The child apparently suffocated when he became wedged between the adult and the back of the sofa.

  A mother fell asleep on the sofa while feeding her 5-week-old infant. She awoke the next morning to find the infant face down into the sofa.

  A one-month-old female was placed in her crib with several blankets, a large pillow and stuffed animals. The scene investigation revealed the baby was found with blankets over her face. A pillow wedged under her back to prevent rolling over. It was determined that she had suffocated.

  A 3-week-old female infant was placed in bed with her mother, who was intoxicated. The next morning the infant was found unresponsive by her mother. The baby's death was determined to be the result of a rollover.

Note: The suffocation/strangulation deaths as reported in this section are unintentional. Suffocation/strangulation deaths may also be intentional, inflicted by others (homicide), self-inflicted (suicide) or of an undetermined manner.

Suffocation/Strangulation among Young Children

Obstruction of the airway (suffocation, strangulation and choking) is a leading cause of injury death in infants under the age of 1 year in Missouri and in the United States. These injuries occur when children are unable to breathe normally because food or objects block their internal airways (choking); materials block or cover their external airways (suffocation); or items become wrapped around their neck or exert pressure on their neck and interfere with breathing (strangulation). Children, especially those under age 3, are particularly vulnerable to airway obstruction death and injury due to the small size of their upper airways, their relative inexperience with chewing, and their natural tendency to put objects in their mouths. Additionally, infants' inability to lift their heads or extricate themselves from tight places puts them at greater risk. *(Safe Kids)*

In Missouri, in 2002, **35** children died of unintentional suffocation/strangulation. **Five** of those were young children, ranging in ages 1 to 5 years. Of the **5**, **3** were strangled as various items became wrapped around their necks, including a rope, a cord from window blinds, and bedding; the other **2** children choked on food.

Figure 17. Unintentional Strangulation/Suffocation Deaths by Age

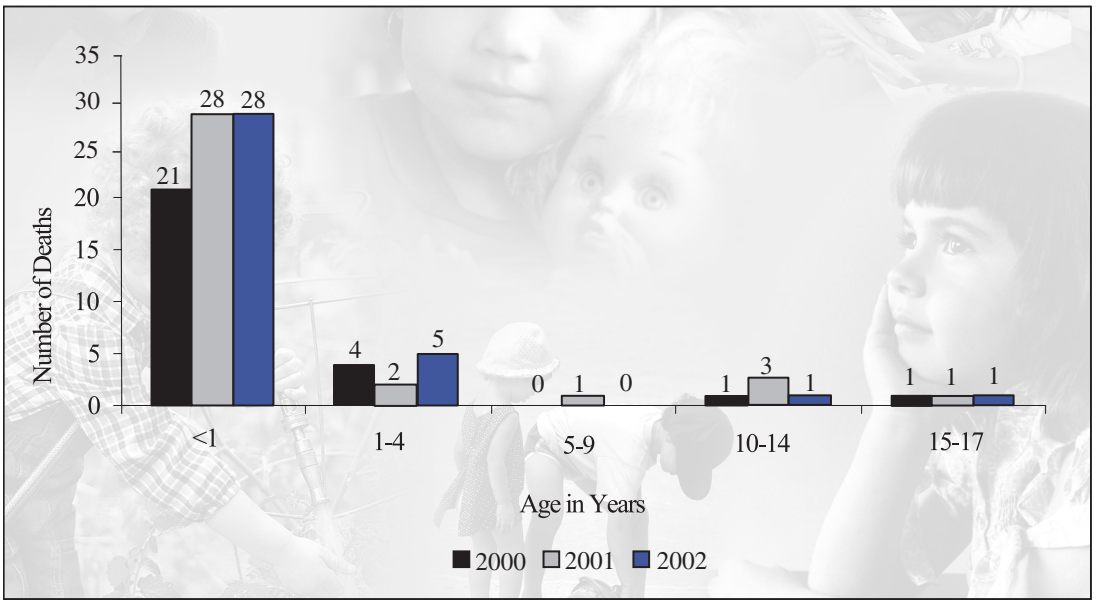


Figure 18. Unintentional Strangulation/Suffocation Deaths by Sex and Race

Sex	2000	2001	2002
Female	12	18	16
Male	15	17	19
	27	35	35

Race	2000	2001	2002
White	22	26	20
Black	5	9	15
	27	35	35

Of the **35** Missouri children who died in 2002 as a result of unintentional suffocation/strangulation, **28** (80%) were infants under the age of one year.

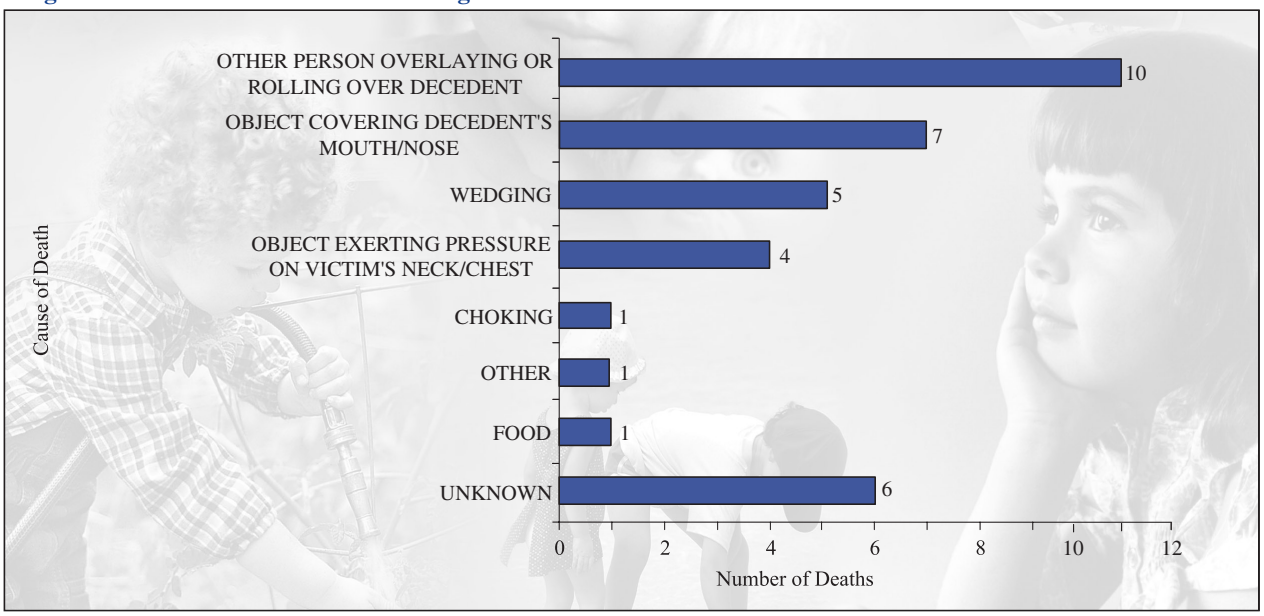
Sudden Unexpected Infant Deaths: Suffocation and Undetermined

Most infant deaths due to **suffocation** are directly related to an unsafe sleep environment. Many parents and caregivers do not understand the risks associated with unsafe sleeping arrangements. Infants can suffocate when their faces become positioned against or buried in a mattress, cushion, pillow, comforter or bumper pad, or when their faces, noses and mouths are covered by soft bedding, such as pillows, quilts, comforters and sheepskins. In most cases of unintentional suffocation, the sleeping environment is such that most normal infants would not have been able to move themselves out of the unsafe circumstances.

An **overlay** is a type of unintentional suffocation that occurs when an infant is sleeping with one or more persons (bed sharing with adults or older children) and someone rolls over on them. A suffocation due to overlay can be verified by one of the following means: (1) the admission of someone who was sharing the bed that they were overlying the infant when they awoke or (2) the observations of another person. Most infant deaths involving possible or suspected overlay are classified as **undetermined** cause because the actual positions of the infant and other person at the time of the death were not witnessed.

In some cases, even the most thorough and careful scene investigation and autopsy do not produce a definitive cause of death, because risk factors are present that are significant enough to have possibly contributed to the death. One such risk factor is an unsafe or challenged sleep environment. Recent studies of epidemiological factors associated with sudden unexpected infant deaths demonstrate that prone sleeping and the presence of soft bedding near the infant's head and face pose very strong environmental challenges by limiting dispersal of heat or exhaled air in the vast majority of cases. However, the extent to which such environmental challenges play a role in a particular sudden infant death often cannot be determined. Sudden unexpected infant deaths involving an unsafe sleep environment are classified as **undetermined** when unintentional suffocation is not conclusively demonstrated by the scene investigation. **Four** Missouri children died of suffocation of an undetermined manner.

Figure 19. Cause of Unintentional Strangulation/Suffocation Deaths



Prevention Recommendations:

For parents:

- Follow "Safe Bedding Practices for Infants" recommended by the American Academy of Pediatrics:
  - Place baby on his/her back on a firm, tight-fitting mattress in a crib that meets current safety standards.
  - Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
  - Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
  - If using a blanket, put baby at the foot of the crib. Tuck a thin blanket around the crib mattress, covering only as far as the baby's chest.
  - Make sure your baby's head remains uncovered during sleep.
  - Do not place baby on a waterbed, sofa, soft mattress, pillow, or other soft surface to sleep.
- Remove drawstrings from children's clothing.
- Tie up or remove all cords for window coverings.

For community leaders and policy makers:

- Support legislation that requires improved product design, or removal of hazardous products from the market.

For professionals:

- Information about unintentional suffocation/strangulation hazards to young children, including unsafe sleep practices should be widely disseminated.
- Teach parents CPR and the Heimlich Maneuver for infants and young children.

For Child Fatality Review Panels:

- Report any child death that appears to involve a product hazard to the Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance; contact STAT for assistance.

Resources and Links:

Consumer Product Safety Commission . . . . . www.cpsc.gov
National Safe Kids Campaign. . . . . www.safekids.org
American Academy of Pediatrics. . . . . www.aap.org
Missouri Children's Trust Fund, "Safe Crib-Safe Sleep" Campaign www.ctf4kids.org
Sudden Unexpected Infant Death: A Guide for
Missouri Coroners and Medical Examiners . . . . . www.dss.mo.gov/stat/suid.pdf

Fire/Burn Fatalities

Fire/Burn injuries were the cause of 22 Missouri child deaths in 2002, representing 9% of unintentional injury deaths.

Representative Cases:

- **Lighters, matches and other sources of fire should be kept locked away from children.**

  A 4-year-old male and another sibling were playing with a lighter and started a fire in the home. The child died of smoke inhalation. There were no smoke alarms present.

- **Properly installed and maintained smoke detectors are effective in preventing fatalities.**

  A 16-month-old male died in a house fire after the space heater caught some bedding on fire in the home. Smoke alarms were present in the home, but had not been in working order for several months.

- **Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened, and confused in a fire to escape to safety.**

  A 6-year-old female died from burns in a house fire. Faulty wiring caused the fire. The child became confused and disoriented trying to escape. She was found hiding behind the couch. The family had not practiced a fire escape plan.

Each year in the United States more than 600 children ages 14 and under die, and nearly 47,000 are injured in fires. In Missouri, **22** children died as a result of unintentional fire/burn injury in 2002; **8** of those children were under the age of 5. Fire and burn injuries are the third leading cause of unintentional injury deaths among Missouri children.

Children, especially those age 5 and under, are at the greatest risk from home fire-related death and injury, and are more than twice as likely to die in a fire than the rest of the population. Young children have a limited ability to react promptly and properly to a fire; they are unable to act, or act irrationally. They may attempt to hide or run from adults attempting to rescue them. More than half the children under the age of 5, who die in home fires, are asleep at the time of the fire. (*Safe Kids*)

Figure 20. Fire/Burn Deaths by Age

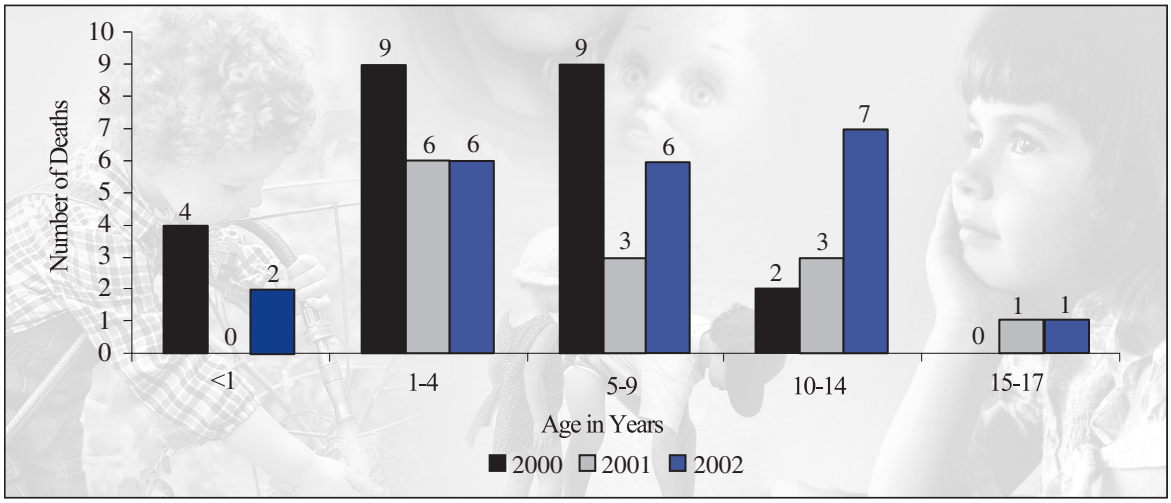


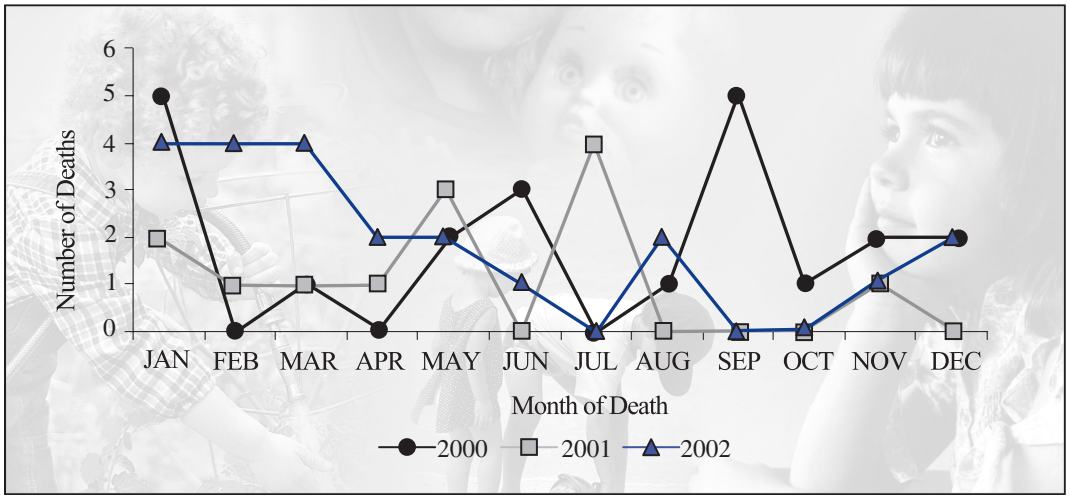
Figure 21. Fire/Burn Deaths by Sex and Race

Sex	2000	2001	2002
Female	12	3	7
Male	12	10	15
	24	13	22

Race	2000	2001	2002
White	16	11	14
Black	8	2	6
Other			2
	24	13	22

Residential fires and related fatalities tend to occur more often during cold-weather months, when the use of heating systems is at a peak.

Figure 22. Fire/Burn Fatalities by Month of Death



Fire/Burn Deaths Among Children

- In the United States, a working smoke alarm is not present in two-thirds of the residential fires in which a child is injured or killed. Smoke detectors were reported to be present in only **9** (41%) of the **22** fatal Missouri fires reviewed by county CFRP panels in 2002. Approximately 90% of homes in the U.S. have a smoke alarm; however, these alarms are not always properly maintained.
- Children from low-income families are at greater risk for fire-related death and injury, due to factors such as lack of working smoke alarms, substandard housing, use of alternative heating sources and economic constraints on providing adequate adult supervision. (*Safe Kids*)
- Children living in rural areas have a dramatically higher risk of dying in a residential fire. (*United States Fire Administration*)
- Nationally, over 30% of the fires that kill young children are started by children playing with matches or lighters. These fires tend to begin in the bedroom or living room, where children are often left alone to play. (*National Center for Injury Prevention and Control*) In Missouri, in 2002, **4** children are known to have died in fires started by children playing with matches or lighters.

Juvenile Firesetting

In 2002 **four** Missouri children were known to have died in fires resulting from juvenile firesetting. The United States Fire Administration points out that these are not isolated incidents and the number of fires set by children is growing. In a typical year in the United States, 300 people are killed and $300 million in property is destroyed in fires set by children. Children themselves are usually the victims of these fires, accounting for 85 of every 100 fatalities.

It is generally recognized that the motivation for firesetting can be considered in two categories: (1) *Curiosity firesetters* are usually 2-7 year olds whose fascination leads them to play with matches or lighters. These children do not recognize the consequences of the behavior. They usually respond to educational services, including educational programs, firehouse tours, etc. (2) *Problem firesetters* may also be very young, but generally are 5-17 years old. Their behavior may be considered pathological, a "cry for help." These children appear to light fires because of emotional or mental disturbances ranging from mild to severe. When firesetting appears to be related to emotional problems, referrals should be made to mental health services. *(United States Fire Administration)*

Regardless of the motivation, firesetting behavior must always be taken very seriously. The United States Fire Administration recommends that parents contact their local fire department or state fire services for help. Local fire departments throughout the state are adopting various approaches to critical elements of prevention: (1) identification/referral of the firesetter, (2) evaluation, and (3) intervention.

Fire/Burn Fatalities as Reported on CFRP Data Forms

Smoke alarm present		Fire started by	
Yes	9	Decedent	2
No	6	Other	5
Unknown	6	No one	12
Not applicable	1	Unknown	2
Not Answered	0	Not Answered	1

Activity of person starting fire		Multiple fire injuries or deaths	
Playing	4	Yes	16
Cooking	1	No	5
Not Applicable	11	Not Answered	1
Not Answered	6		

For structure fire, where was decedent found?		Did decent know of a fire escape plan?	
In bed	6	Yes	2
Close to exit	5	No	4
Other	11	Unknown	11
		Not Applicable	4
		Not Answered	1

Source of fire		Smoke alarm in working order	
Matches	2	Yes	5
Combustibles	1	No	6
Space Heater	4	Unknown	7
Faulty Wiring	7	Not Applicable	4
Other	6		
Unknown	2		

Something We Can Do: Fire Prevention Awareness Day

When 3 children died in a house fire in St. Louis, CFRP panel members and other community leaders talked about finding a way to target that neighborhood for a fire safety campaign that would provide an appropriate prevention response to those tragic deaths. Smoke detectors, properly installed and maintained, have proven extremely effective in preventing fatalities. For the last 8 years, volunteers have brought "Fire Prevention Awareness Day" to high-risk neighborhoods throughout the region. Working from a staging area where families can gather for food, fun and prevention education, firefighters and volunteers go door to door, installing smoke detectors or fresh batteries and providing fire safety information. Media attention for these events helps spread the prevention message.

For information or a printed guide on "Neighborhood Fire Prevention Awareness Day" call STAT at 800-487-1626.

Prevention Recommendations:

For parents:

- Young children require vigilant supervision.
- Keep matches, gasoline, lighters and all other flammable materials locked away and out of children's reach.
- Install smoke alarms on every level and in every sleeping area. Test them once a month. Replace batteries at least once a year.
- Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened and confused in a fire, to escape to safety.

For community leaders and policy makers:

- Enact laws that require smoke detectors in new and existing housing, and make landlords responsible for ensuring that rental properties have working smoke detectors.
- Enforce building codes and conduct inspections.

For professionals:

- Smoke detector giveaway programs have proven useful when high-risk areas are targeted. Implement such a program in your community.
- Implement a multi-faceted community campaign to prevent burn injuries. Target a well-defined population with a very specific message.

For Child Fatality Review Panels:

- When reviewing a child death that is the result of a residential fire, determine if the local building code requires smoke detectors in residences, and if a working smoke detector was present in the home. Use that information to develop an action plan, such as working to change the code or pursuing prosecution of a negligent landlord. Special attention should be paid to the issue of adult supervision when investigating deaths of young children in house fires.

Resources and Links:

Missouri Division of Fire Safety . . . . . .www.mdfs.state.mo.us

United States Fire Administration . . . . . .www.usfa.fema.gov

National Safe Kids Campaign . . . . . .www.safekids.org

Harborview Injury Prevention and Research Center . . . . . .depts.washington.edu/hiprc

Drownings

There were 20 accidental drowning deaths in Missouri in 2002, representing 9% of unintentional injury deaths.

Representative Cases:

- **Toddlers and young children require vigilant adult supervision when outdoors near bodies of water, such as pools, creeks and streams.**

  While on a camping trip, a mother and her 5-year-old son took a nap in their camper. The door to the camper had been left open. The child left the camper as his mother continued to sleep. He drowned in a nearby lake.

  A 4-year-old male drowned in the family pool. The pool had been left uncovered during the winter months and it was full of rainwater. Both parents were home and each thought the other one was watching the child.

- **Infants and young children require constant supervision while in a bathtub.**

  A 14-month-old female was left unattended in the bathtub for approximately five to ten minutes while her father finished dressing. He found her floating in the tub in eight inches of water.

- **Personal flotation devices should be worn at all times in and around open water.**

  A 14-year-old male was swimming in his family's pool. He was wearing a personal flotation device, but removed it because it was uncomfortable. He was found later by his siblings at the bottom of the pool.

In the United States, drowning is the second leading cause of unintentional injury-related deaths among children, taking more than 1,000 young lives each year. In Missouri, drowning ranked fourth as a leading cause of injury death. Young children, age 4 and under, have the highest drowning death rate *(Safe Kids)*. Of the **20** Missouri children who drowned in 2002, **10** (50%) were age 4 and under; **3** (15%) of those were infants under the age of 1 year.

Figure 23. Drowning Deaths by Age

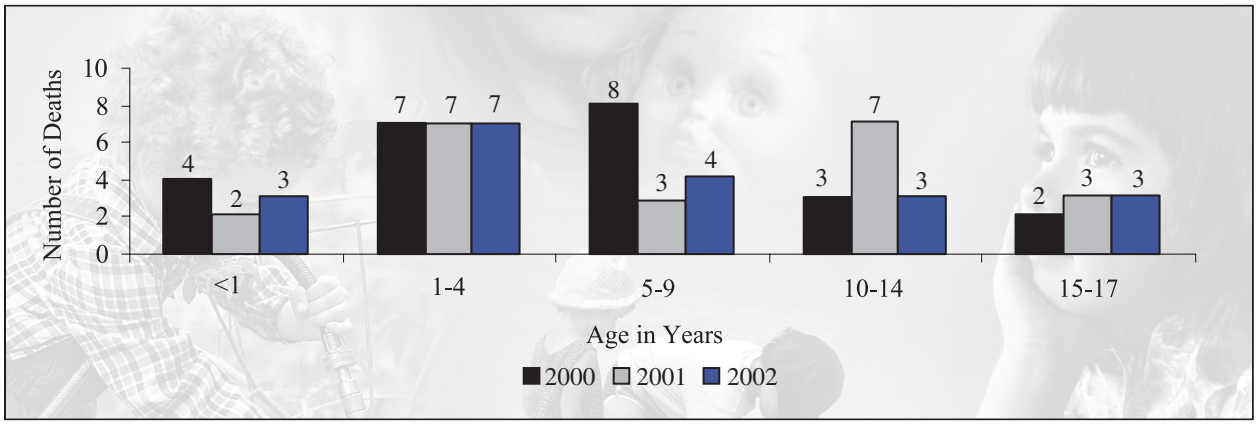


Figure 24. Drowning Deaths by Sex and Race

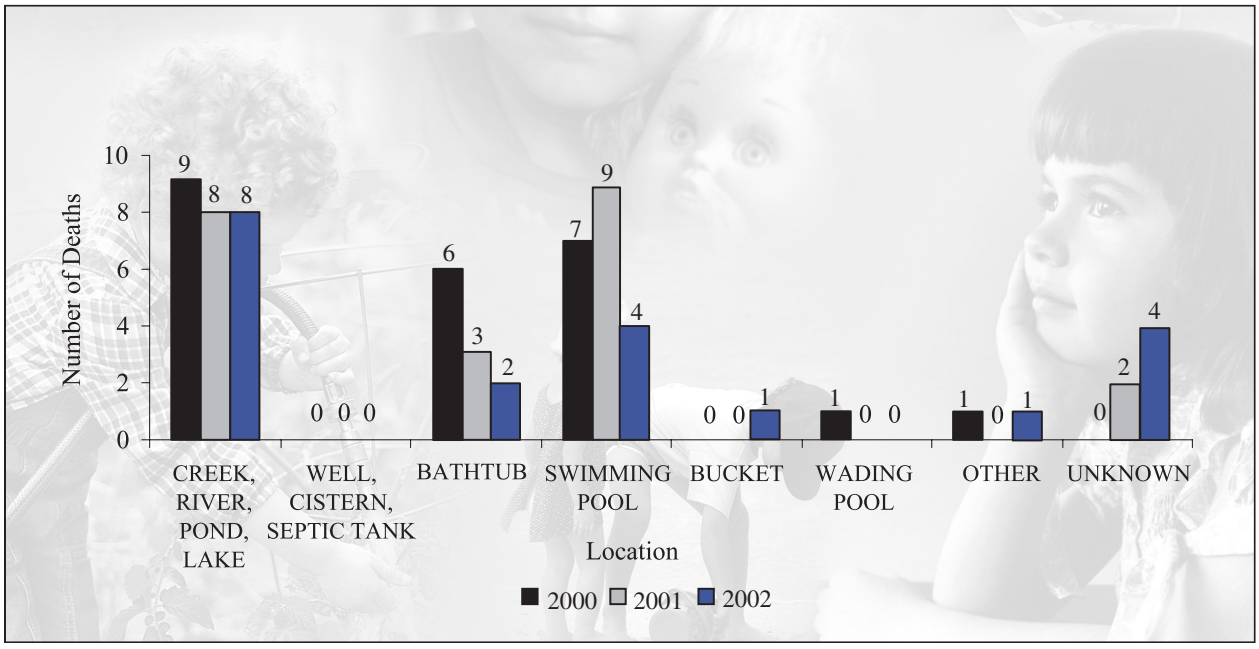
Sex	2000	2001	2002
Female	5	11	7
Male	19	11	13
	24	22	20

Race	2000	2001	2002
White	17	14	15
Black	7	5	5
Other	0	3	0
	24	22	20

Drownings among infants under age 1, typically occur in residential bathtubs. Most drownings among children 1 through 4 years old, occur in residential swimming pools. However, children can drown in as little as one inch of water and, therefore, are at risk of drowning in wading pools, buckets, toilets and hot tubs. Childhood drownings can happen in a matter of seconds and typically occur when a child is left unattended, or during a brief lapse in supervision. Contrary to what many people believe, drowning usually occurs quickly and silently. The scenario that a drowning person will make lots of noise while thrashing around in the water and resurface several times before actually drowning is pervasive, but entirely false.

Older children are more likely to drown in open water sites such as creeks, lakes and rivers. Of the **20** Missouri children who drowned in 2002, **4** (20%) occurred in swimming pools, **8** (40%) occurred in open water sites.

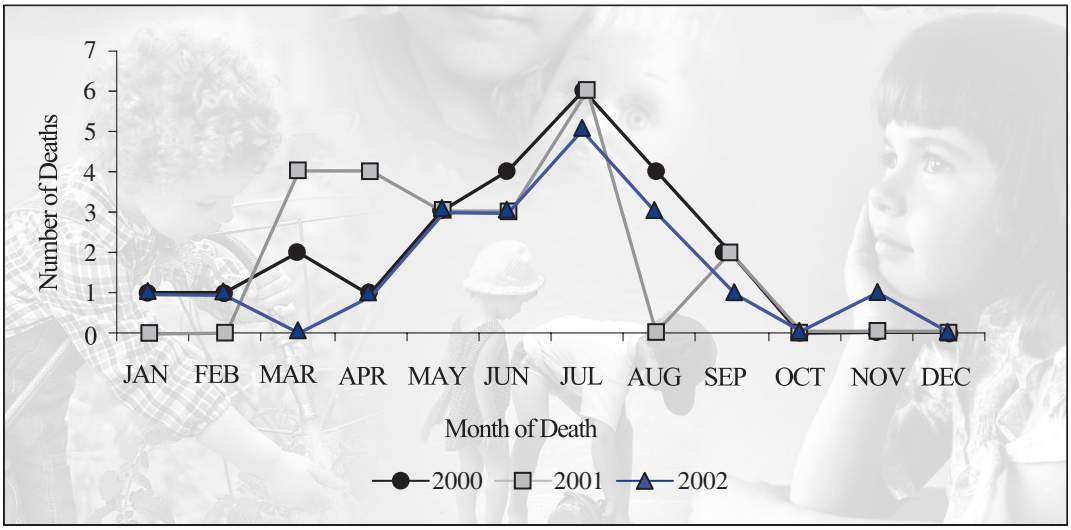
Figure 25. Location of Drownings



Drowning Deaths among Children

- Supervision of children in and around water is critical. Of the **16** drowning fatalities in 2002 in which supervision of the child victim was a consideration, panels found that **10** (63%) had entered the water unattended.
- Use of a personal flotation device is well established as an effective means to prevent drowning deaths. **None** of the Missouri children who drowned in 2002, were wearing a personal flotation device.
- The warm-weather months of June, July, August and September are peak months for drowning, coinciding with increased activity in swimming pools and open water sites.

Figure 26. Drowning Deaths by Month of Death



Prevention Recommendations:

For parents:

- Never leave a child unsupervised in or around water in the home or outdoors, even for a moment.
- For families with residential swimming pools: Install four-sided pool fencing with self-closing and self-latching gates. The fence should be at least four feet tall and completely separate the pool from the house and play area of the yard.
- Ensure that children always wear U.S. Coast Guard-approved personal flotation devices near open water or when participating in water sports.
- Learn CPR.

For community leaders and policy makers:

- Enact and enforce pool fencing ordinances.
- Enforce existing regulations regarding the use of personal flotation devices when boating.

For professionals:

- Parents, as well as children, should receive water safety education. This should include discussion of water hazards to children (including buckets) and the importance of vigilant supervision.
- Facilitate CPR training for parents of small children.

For Child Fatality Review Panels:

- Promote public education about drowning hazards to children and strategies to prevent drowning.

Resources and Links:

National Safe Kids Campaign . . . . . .www.safekids.org
National Center for Injury Prevention . . . . . .www.cdc.gov/ncipc
Harborview Injury Prevention and Research Center . . . . . .http://depts.washington.edu/hiprc
Consumer Product Safety Commission . . . . . .www.cpsc.org
Red Cross . . . . . .www.redcross.org
The United States Lifesaving Association (USLA) . . . . . .www.usla.org

Unintentional Firearm Fatalities

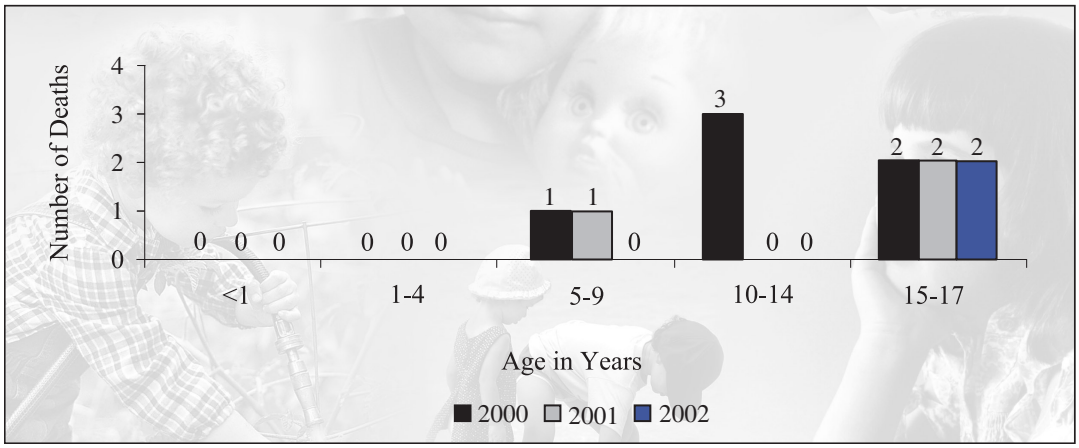
Unintentional firearm injuries were the cause of 2 deaths of Missouri children in 2002, representing 1% of unintentional injuries.

Representative Cases:

- **Education should be offered in all communities about gun safety. Parents should monitor children who are handling firearms.**

  A 14-year-old male was "playing" with his father's gun after school in his bedroom. The gun accidentally discharged, striking him in the face.

Figure 27. Unintentional Firearm Fatalities by Age



Boys are far more likely to be victims of unintentional firearm deaths than girls. In the United States, nearly 80% of the children killed in unintentional shootings are male. Both of the unintentional firearm deaths among Missouri children in 2002, were male.

Nationally, more than 70% of unintentional firearm shootings involve handguns. Both of the unintentional firearm deaths among Missouri children in 2002, involved a handgun.

Unintentional Firearm Deaths Among Children

- Most unintentional childhood shooting deaths involve guns kept in the home that have been left loaded and accessible to children, and occur when children play with loaded guns.
- Unintentional shootings among children most often occur when children are unsupervised and out of school. These shootings tend to occur in the late afternoon, during the weekend, and during summer months and the holiday season.

- Nearly two-thirds of parents with school-age children, who keep a gun in the home, believe that the firearm is safe from their children. However, one study found that when a gun was in the home, 75-80% of first and second graders knew where the gun was kept.
- Generally, before age 8, few children can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.
- Children as young as age 3, are strong enough to pull the trigger of many of the handguns available in the U.S.

Prevention Recommendations:

For parents:

- Parents who own guns should always store firearms unloaded and locked up, with ammunition locked in a separate location, out of children's reach, use gun locks, load indicators and other safety devices on all firearms.
- All parents should teach children never to touch a gun and tell an adult if they find a gun.

For community leaders and policy makers:

- Enforce laws and ordinances that restrict access to and decrease availability of guns.
- Enact and enforce laws requiring new handguns be designed to minimize the likelihood of discharge by children.
- Enact laws outlining owner liability for harm to others, caused by firearms.

For professionals:

- Implement gun safety education. It is important to include public education about the hazards of firearms, as one component of an overall effort to reduce the incidence of firearm injuries and deaths.

For Child Fatality Review Panels:

- In all cases of firearm fatalities involving children, ensure that every effort is made to determine the source of the gun and consider the responsibility of the gun owner in the incident.

Resources and Links:

National Safe Kids Campaign . . . . . .www.safekids.org

Harborview Injury Prevention and Research Center . . . . . .http://depts.washington.edu/hiprc

Child Fatalities Involving Inadequate Care

Note that child deaths discussed under "Inadequate Care" are not included with Child Abuse and Neglect Fatality data reported in the section that follows. In the case of most child fatalities, negligent treatment is not the direct cause of death, but may be identified as a contributing factor by the local CFRP panel reviewing the death. Examples include delayed or inadequate medical care, malnutrition, unsanitary living conditions and lack of supervision, designated as "Inadequate Care."

The majority of unintentional fatalities and serious injuries among young children are the result of a temporary lack of supervision or inattention at a critical moment. This is often the case when infants and toddlers drown in bathtubs and swimming pools, or young children dart in front of moving vehicles. Parents and caretakers often underestimate the degree of supervision required by young children. This is complicated by the mistaken idea that young children have some sort of innate fear of dangerous situations.

CFRP panels reported **33** child fatalities in 2002, in which inadequate care contributed to the death of a child.

Inadequate care or neglect			
Apparent lack of supervision	11	Delayed medical care	1
Apparent lack of medical care	3	Inadequate medical attention	1
Failure to thrive (non-organic)	0	Out-of-hospital birth	0
Malnutrition	1	Oral Water Intoxication	0
Dehydration	1	Other	12
		Unrestrained Motor Vehicle Passengers < 4 years	3

In addition, young children riding as unrestrained passengers, killed in motor vehicle crashes, should be included in this category. In Missouri in 2002, CFRP panels reported **37** child passenger fatalities in which the victim was known to be riding unrestrained; of those, **3** were age 4 and under, **3** were age 5-9 years and **4** were age 10-14 years.

SECTION FOUR: Intentional Injury Deaths

Intentional injury includes child deaths designated by death certificate as homicide and suicide, along with other child deaths identified by the Child Fatality Review Program as Fatal Child Abuse and Neglect deaths. In considering Intentional Injury, note that the term "intentional" does not necessarily describe the mindset of the victim or perpetrator, but indicates only that the circumstances involved harmful, volitional acts.

Manner of Death

Homicide occurs when death results from a volitional act committed by another person to cause fear, harm, or death. Intent to kill is a common element, but is not required for classification as homicide. *Suicide* results from an injury or poisoning as a result of an intentional, self-inflicted act committed to do self-harm or cause the death of one's self.

Homicides

Homicide was listed as the death certificate manner of death for 45 Missouri children in 2002.

For the purpose of analysis of child deaths and their prevention, homicides are divided into three categories, based on the relationship of the perpetrator to the victim:

(1) **Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent.** This includes, but is not limited to, children whose deaths were reported as *homicide* by death certificate. In 2002, **38** Missouri children were victims of Fatal Child Abuse and Neglect; of those, **24** were reported by death certificate as homicide.

(2) **Death of a child in which the perpetrator was not in charge of the child.** This most often includes youth homicides, such as gang-related or drug-related shootings and child abductions that culminate in murder. There were **21** such fatalities among Missouri children in 2002.

(3) **Deaths of children in which the perpetrator, not in charge of the child, was engaged in criminal or negligent behavior and the child was not an intended victim.** Examples most often include motor vehicle-related deaths involving drugs, alcohol and other criminal behavior. In 2002, there were no homicide deaths of this type among Missouri children.

Figure 30. Homicides by Age

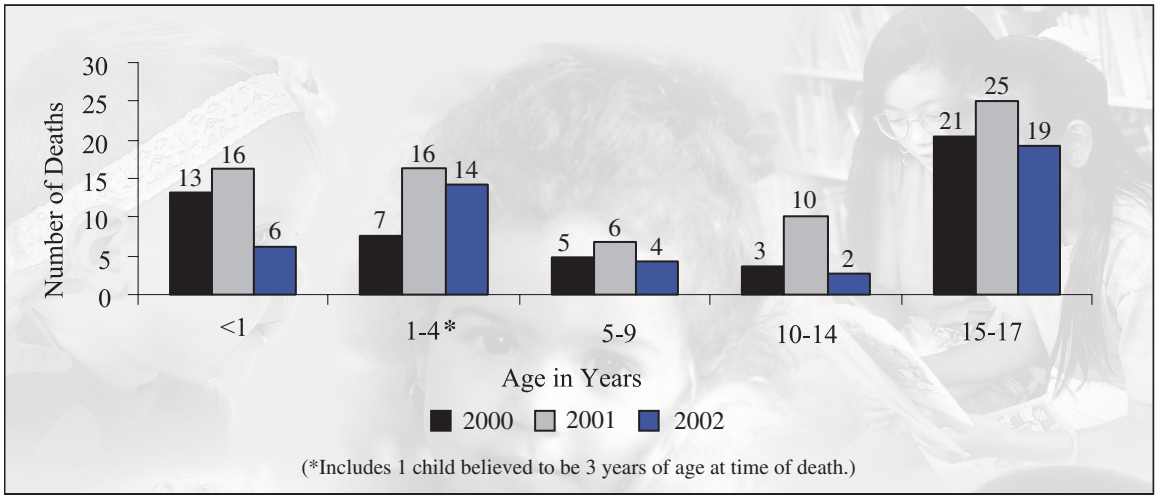
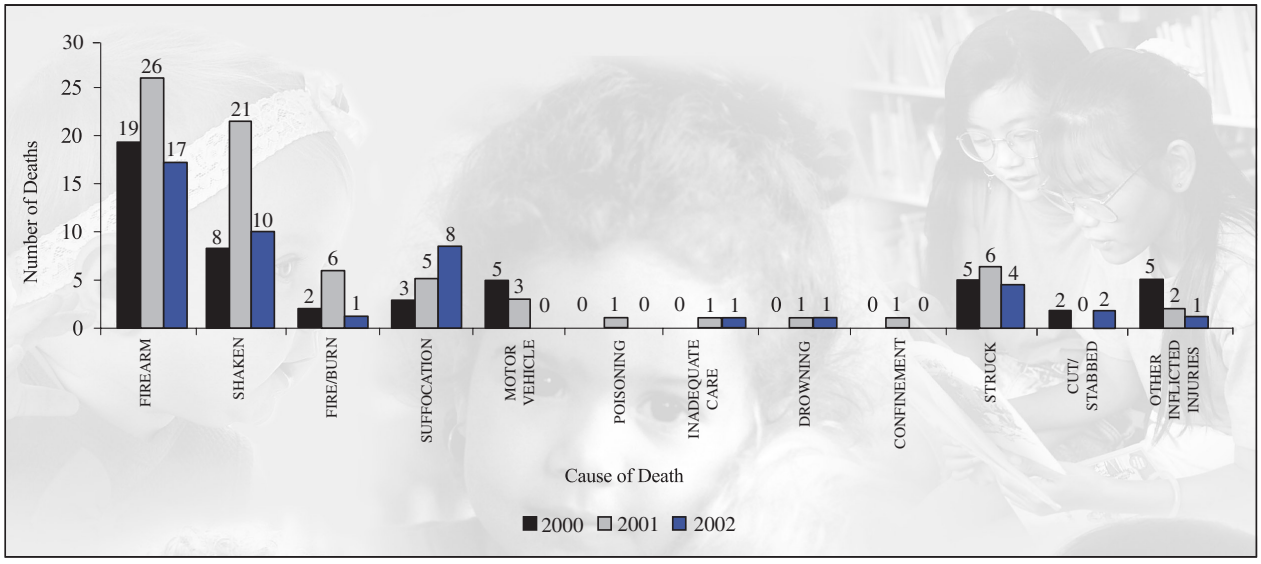


Figure 31. Homicides by Sex and Race

Sex	2000	2001	2002
Female	19	27	19
Male	30	46	26
	49	73	45

Race	2000	2001	2002
White	22	29	24
Black	26	44	20
Other	1	0	1
	49	73	45

Figure 32. Homicides by Cause



Fatal Child Abuse and Neglect

Of the 45 child homicides in Missouri in 2002, 24 (53%) children died at the hands of a parent or caretaker. Of those, 23 children died of physical abuse injuries and one child died of neglect.

In 2002, **38** Missouri children were designated as victims of Fatal Child Abuse and Neglect by the Child Fatality Review Program; of those, **24** were reported by death certificate as homicide.

Representative Cases:

- **Young children are more likely to die from abuse and neglect.**

  The mother of a 9-month-old female left the baby in the care of her boyfriend while she went to work. A short time later, she was rushed to the hospital after allegedly choking on food. She was unconscious on arrival and died a few hours later. Autopsy revealed external bruises and massive internal injuries.

  A 6-month-old female was left in the care of an adult female babysitter while her mother was looking for a job. The babysitter picked up the child and shook her until she stopped crying. The baby became unconscious and was rushed to the hospital, where she died.

- **Multidisciplinary teams should be developed, supported and trained on the local level to investigate serious offenses against children.**

  A 3-year-old male died as a result of a neck injury and intentional suffocation inflicted by his mother's boyfriend. At autopsy, there was evidence of previous physical and sexual abuse.

  A 2-year-old male with a severe inflicted brain injury was admitted to a hospital from a foster home. He died at the hospital. He had been seen one week prior with a possible seizure and altered level of consciousness, but was released back to the foster home.

- **Parents and caretakers must be educated about the dangers of shaking and ways to cope with crying infants.**

  A 2-year-old girl was rushed to the hospital in cardiac arrest. The parents gave a history of a fall and injury to the head the previous day. Upon examination, she was found to have multiple bruises, abrasions and other external injuries, as well as retinal hemorrhages and severe brain trauma. She died at the hospital.

  A 2-year-old male died after being shaken and thrown against a door by his father. There was a history of domestic violence and child abuse in the household.

  An 11-month-old female was left in the care of her mother's boyfriend for less than 30 minutes. The mother returned to find the child unconscious. She was rushed to the hospital by EMS, where she died of abusive head injuries. The boyfriend admitted to shaking the child violently just before she became unconscious, because she would not stop crying.

Child fatalities are the most tragic consequence of child abuse and neglect. In the United States, approximately 1,200 children die of abuse or neglect each year, according to vital records (NCANDS). However, it is well documented that child abuse and neglect fatalities are underreported and that, nationally, at least 2000 children die each year at the hands of their parents or caretakers. Some estimates are as high as 3-5,000. (Ewigman et al., 1993; Herman-Giddens et al., 1999) There are a number of reasons for the discrepancies and some of the fundamental problems are highlighted in this section. The Centers for Disease Control has funded an effort to develop a standardized national surveillance system capable of accurately reporting child abuse and neglect fatalities. On a state level, properly organized and functioning child fatality review systems have improved the accuracy of child death reporting.

In Missouri, there are three entities within state government responsible for child fatality information: **Department of Health & Senior Services' Bureau of Vital Statistics, Department of Social Services, Children's Division** and the **Child Fatality Review Program.** All three exchange and match child fatality data in order to ensure accuracy throughout the system. However, the Bureau of Vital Statistics, Children's Division and the Child Fatality Review Program serve very different functions and, therefore, different classifications and timing periods apply when child fatality data is reported.

Vital Statistics and Death Certificate Information

The death certificate is used for two major purposes. One is to serve as legal documentation that a specific individual has died. In general, the death certificate serves as legal proof that death has occurred, but not as legal proof of the cause of death. The second major purpose of the death certificate is to provide information for mortality statistics that may be used to assess the nation's health, causes of morbidity and mortality, and developing priorities for funding and programs that involve public health and safety issues.

Death certificate information is widely recognized as inadequate as a single source for identification of child abuse and neglect deaths. Misidentification of deaths may occur because of inadequate scene investigation or autopsy procedure, inadequate investigation by law enforcement or child protection, or misdiagnosis by a physician or coroner. Child abuse and neglect fatalities often mimic illness and accidents. Neglect deaths are particularly difficult to identify because negligent treatment often results in illness and infection that can be attributed to natural causes.

Children's Division: Child Abuse/Neglect Fatalities

In Missouri, the Children's Division is the hub of the child protection community. Since August 2000, all child deaths are reported to the Children's Division Central Registry. Any child not dying from natural causes, while under medical care for an established natural disease, is brought to the attention of the division by the coroner or medical examiner. A fatality report is taken and, when appropriate, the report is accepted for investigation of child abuse and neglect by the division. The Child Fatality Review Program is immediately notified of all fatality reports. The division is also responsible, if ordered by a judge, for protecting any other children in the household, until the investigation is complete and their safety can be assured.

After a report of child abuse or neglect has been made, investigations that return sufficient evidence supporting the report are classified as *probable cause child abuse and neglect.* When there is probable cause to believe that a child who has died was abused or neglected, or when this finding is court-adjudicated, that death is considered by the division to be a *probable cause child abuse and neglect fatality.* Thus, reports classified by the division as *probable cause child abuse and neglect fatalities* include deceased children whose deaths may or may not have been a direct result of the abuse or neglect. (An example would be an unsupervised toddler who was run over in the driveway of her home. That death would be included as a pedestrian fatality in this CFRP Annual Report, with Inadequate Care as a contributing factor. In a case such as this, DFS would determine that there was *probable cause* to believe that this child was a victim of *neglect,* specifically, lack of supervision.

The Missouri Child Fatality Review Program: Fatal Child Child Abuse and Neglect

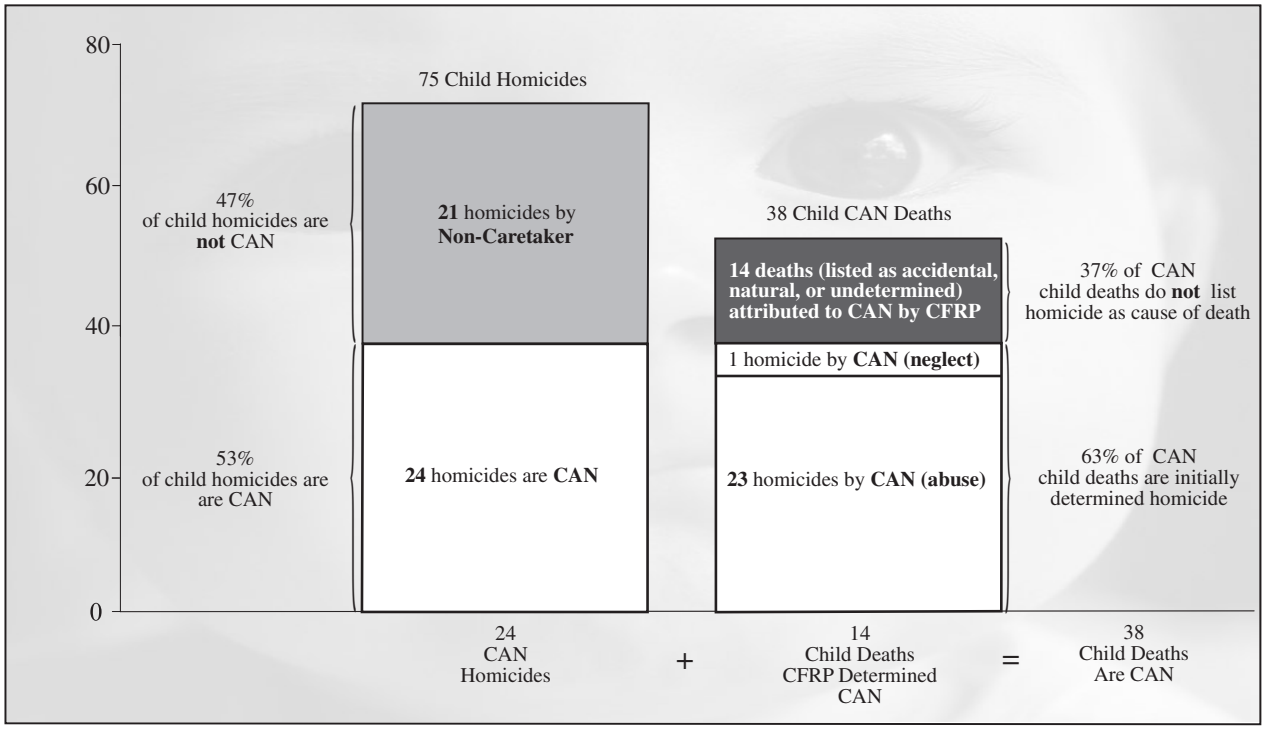
Child fatalities represent the extreme of all issues that have a negative impact on children. Despite an increasing awareness of severe violence against children, very little was known in the past about fatal child abuse and neglect. In the late-1980's, Missouri researchers discovered that many fatal child injury cases were inadequately investigated and that many children were dying from common household hazards with inadequate supervision. Many cases of fatal abuse and neglect went undetected, misclassified as natural deaths, accidents or suicides. The information necessary for a thorough investigation of a child death was distributed among agencies, which could not share records. In 1992, Missouri initiated a comprehensive, statewide child fatality review system. The CFRP review process has resulted in better investigations, more timely communication, improved training and technical assistance, and standardized data collection that allows us to understand much more about how our children die, the circumstances in which they die and who may be responsible.

The Child Fatality Review Program annual reports for 1999 to 2001 refined the reporting and analysis of CFRP data in many ways, including an examination of data concerning "Fatal Child Abuse and Neglect." Those numbers represented a subset of child fatalities reported as *homicide* by death certificate. These changes allowed us to begin to understand much more about how Missouri children die, the circumstances in which they die and who may be responsible.

The Child Fatality Review Program defines *Fatal Child Abuse and Neglect* as child deaths resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This number includes, but is no longer limited to, children whose deaths were reported as homicide by death certificate; their death certificate manners of death may include natural, accident or undetermined (see Appendices 6 and 7 for additional information).

"Murder is no less a crime because a child, rather than an adult, is the victim.
-Unknown

2002 CFRP Child Abuse/Neglect (CA/N) Fatalities



Fatal Child Abuse and Neglect: Inflicted Injury

In the United States, the majority of fatal inflicted injury deaths among children result from abusive head trauma, commonly known as Shaken Baby Syndrome. In Missouri in 2002, **10** (43%) of the **23** children who died from inflicted injury at the hands of a parent or caretaker were victims of abusive head trauma (SBS).

In the United States, the next most common type of physical abuse deaths involve punching or kicking the abdomen, resulting in massive internal injuries and bleeding. Infants and young children are especially vulnerable because vital organs are in close proximity to each other; the ribs are small and cannot protect vital internal organs. In 2002, **3** Missouri children died of blunt trauma injuries when they were punched, kicked or thrown.

In Missouri in 2002, **7** children died of intentional suffocation. **Two** children died of intentional gunshot wounds inflicted by male family members, one father and one grandfather. The Child Fatality Review Program also received a report of the "late death" of a 14-year-old female who had suffered anoxic brain injury during a sexual assault as a toddler.

Child Abuse and Neglect Fatalities by Age	
<1 year	11
1 - 4 years	21
5 - 9 years	4
10 - 14 years	1
15 - 17 years	1

Child Abuse and Neglect Fatalities by Race and Sex			
Females	16	White	27
Males	22	Black	10
		Other	1

Child Abuse and Neglect Fatalities by Cause			
Suffocation	11	Fire/Burn	2
Shaken Baby	10	Blunt Force Trauma to Abdomen	2
Drowning	5	Beaten and Sexually Assaulted	1
Vehicular	3	Medical Neglect	1
Firearm	2	Malnutrition and Dehydration	1

Shaken Baby Syndrome

The most common mechanism of child abuse fatalities in the United States is abusive head trauma or Shaken Baby Syndrome (SBS), which involves the violent shaking of an infant or young child, usually under the age of 4 years. Babies' heads are large and heavy in proportion to their total body weight and their neck muscles are too weak to support such a disproportionately large head. Because a baby's brain is immature, it is more easily injured. When an infant or young child is violently shaken, the head rotates wildly on the axis of the neck, resulting in rotation of the brain within the skull. Brain tissue is bruised or destroyed.

Shaken Baby Syndrome involves an *extremely violent* act. Age-appropriate play, gentle shaking to awaken an unconscious child and CPR do not cause the massive destruction seen in Shaken Baby Syndrome. Short falls from sofas, beds and changing tables, and falls associated with the caretaker falling while carrying the child, do not produce the severe brain injuries of Shaken Baby Syndrome.

Immediate consequences include a decreased level of consciousness and seizures; breathing may stop; the heart may stop and the baby may die. Shaken Baby Syndrome is so lethal that 20-25% of SBS victims die of their injuries. Long term consequences for survivors may include physical disabilities, blindness, speech disabilities, seizures, learning disabilities and death. For survivors, research has established that a significant number of SBS cases are unrecognized and underreported.

Of the **23** Missouri children who died of fatal inflicted injury in 2002, **10** (43%) were victims of Shaken Baby Syndrome.

Figure 35. Shaken Baby Syndrome Deaths by Age

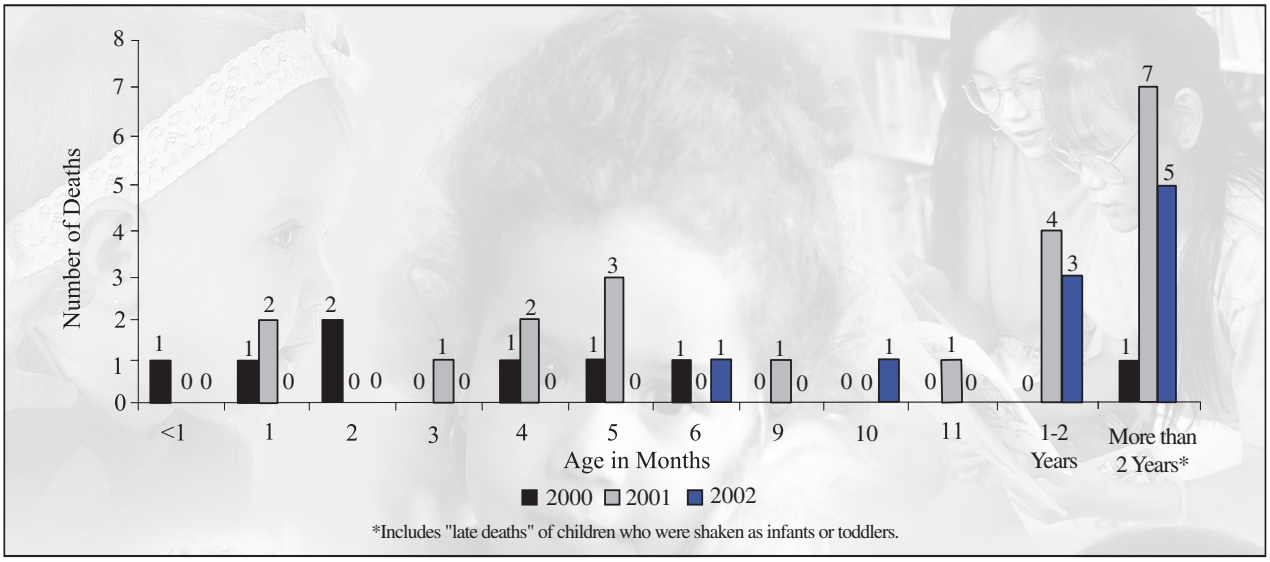


Figure 36. Shaken Baby Syndrome Deaths by Sex and Race

Sex	2000	2001	2002
Female	2	15	7
Male	6	6	3
	8	21	10

Race	2000	2001	2002
White	5	13	7
Black	3	8	3
	8	21	10

Deliberate shaking of an infant or young child is usually the result of frustration or anger. This occurs most often when the baby won't stop crying. Other triggering events include toilet training difficulties and feeding problems.

Figure 37. Shaken Baby Syndrome Deaths by Apparent Triggering Event

Cause	Number of Deaths
Crying	2
Difficulty Feeding	1
Unknown	7
	10

Perpetrators of Shaken Baby Syndrome can be anyone. Most individuals who shake infants do not fall into a specific category, yet research shows that certain characteristics make a person more at risk of being a perpetrator. For example, research has established that fathers and other male caretakers are the most frequent perpetrators of SBS. **Nine** (90%) perpetrators of fatal SBS in 2002 were fathers and other male caretakers.

Figure 38. Perpetrators of Shaken/Impact Syndrome

Perpetrator	Number of Deaths
Stepfather	1
Mother's Paramour	5
Foster Parent	1
Child Care Worker	1
Other Child (a 12 year old boy and a 14 year old boy)	2
	10

Fatal Child Neglect: Grossly Negligent Treatment

Negligent treatment of a child is an act of omission, which is often fatal when due to grossly inadequate physical protection or withholding nutrition or health care necessary to preserve life. Child deaths resulting from grossly negligent treatment are frequently difficult to identify because neglect often results in illnesses and infections that can be attributed to natural causes or exposure to hostile environments or circumstances that result in fatal "accidents."

Definitions of negligent treatment vary depending on whether one takes a legal, medical, psychological, social service or lay perspective. There are broad, widely recognized categories of neglect that include: *physical neglect, emotional neglect, medical neglect, neglect of mental health, and educational neglect.* Within those definitions, there are subsets, as well as variations in severity that often include *severe* or *"nearly-fatal"* and *fatal.* Negligent treatment may or may not be intentional; however, the end result for the child is the same whether the parent is willfully neglectful (e.g., out of hostility) or neglectful due to factors such as ignorance, depression or overwhelming stress and inadequate support.

Grossly negligent treatment by a parent or caretaker generally involves failure to protect from harm and withholding or otherwise failing to provide food, shelter, or medical care necessary to meet the child's basic needs. This level of negligence is egregious and surpasses momentary inattention or a temporary condition; it is often part of a pattern of negligent treatment. Child deaths often result when a parent or caretaker fails to adequately supervise the child, usually for extended periods of time.

In some cases, "failure to protect from harm" or failure to meet basic needs involves exposure to a hostile environment or a hazardous situation with potential for serious injury or death. An example would be a 3-year-old who was riding unrestrained while his intoxicated parents were "playing chicken" with another vehicle. The child was ejected in the crash and died instantly. Another example is a toddler, put outside to play alone, who wandered out of the yard and drowned in a pond.

Medical neglect, as a form of grossly negligent treatment, refers to failure to provide prescribed medical treatment or emergency medical care for a known illness or injury with potential for a serious or fatal outcome. Examples include untreated diabetes or asthma.

In 2002, **15** Missouri children were identified by the Child Fatality Review Program as victims of grossly negligent treatment that resulted in death.*

Circumstances of grossly negligent treatment include the following:

- ***Exposure to a hostile environment or a hazardous situation:***
  - Four-month-old infant, exposed to excessive heat; symptoms of malnutrition and dehydration — 1
- ***Unsafe sleep arrangements, accompanied by conditions of neglect or exposure to a hazardous environment***
  - Infant co-sleeping with mother who was known to be intoxicated — 1
  - Sudden, unexpected and suspicious infant death; co-sleeping with adult on a sofa; conditions of neglect — 1
- ***Motor vehicle fatalities:***
  - Motor vehicle fatalities in which a child age 4 years and under was unrestrained (In one case, adult driver was intoxicated and "playing chicken" with another vehicle.) — 2
  - A 3-year-old child left outside unattended strayed into the street and was struck by a car — 1
- ***Lack of supervision of young child, resulting in drowning:***
  - One-year-old left unattended with bathtub water running until the tub overflowed; the baby drowned — 1
  - Four-year-old child left unsupervised during a party at a hotel pool, drowned — 1
  - Toddler, 23-months-old, was put outside to play alone, drowned in a pond — 1
  - Ten-month-old left unattended, drowned in a toilet — 1
  - Five-year-old left unsupervised, drowned in bathtub in 6-8" of water — 1
- ***Lack of supervision of young child, resulting in unintentional strangulation:***
  - Three-year-old playing outside unsupervised, hung himself on a rope, hanging from a tree — 1
- ***Lack of supervision of young child, resulting in fire/burn fatalities:***
  - One-year-old left alone in the home, died in a house fire — 1
  - Two-month-old baby placed on floor grate above the furnace, died of extensive burns — 1
- ***Medical neglect: failure to provide medical care for a known condition with potential for serious or fatal outcome:*** — 1
  - Premature infant born at home, received no medical care — 1

*Note that, for data purposes, 14 of the 15 deaths listed were <u>not</u> designated as homicide by death certificate; they are included in the data for the appropriate Illness/Natural Cause or Unintentional Injury category, according to the cause and circumstances. It should also be noted that this group of children was not included in Fatal Child Abuse and Neglect totals in CFRP Annual Reports prior to 2001.

Something We Can Do: Preventing Shaken Baby Syndrome

The majority of fatal inflicted injury deaths among children involve abusive head trauma, commonly known as Shaken Baby Syndrome (SBS). Research has demonstrated that prevention programs targeting all new parents and caregivers with education about the dangers of shaking and ways to cope with crying infants results in a measurable reduction in the number of serious and fatal injuries.

Children's Trust Fund, Missouri's Foundation for Child Abuse Prevention, provides SBS Prevention materials, including brochures and "Preventing Shaken Baby Syndrome" videotapes for parents and for child care providers.

For additional information, or to order education materials, contact CTF at 573-751-5147 or visit the website at www.ctf4kids.org.

Prevention Recommendations:

For parents:

- Report child abuse and neglect.
- Seek crisis help through the Parent Helpline (800-367-2543) or ParentLink (800-552-8522).

For community leaders and policy makers:

- Support and fund home-visitation child abuse prevention programs that assist parents.
- Enact and enforce laws that punish those who harm children.

For professionals:

- Support and facilitate public education programs that target male caretakers and child care providers.
- Expand training on recognition and reporting of child abuse and neglect.
- Support development and training for multidisciplinary teams to investigate child abuse.

For Child Fatality Review Panels:

- The role of CFRP panels is critical in identifying fatal child abuse, protecting surviving children, and ensuring that the family receives appropriate services. CFRP panels provide important data that enhances our ability to identify those children who are most likely to be abused and intervene before they are harmed.

Resources and Links:

National Committee to Prevent Child Abuse . . . . . .www.childabuse.org

American Academy of Pediatrics . . . . . .www.aap.org

Harborview Injury Prevention and Research Center . . . . . .http://depts.washington.edu/hiprc

Missouri Children's Trust Fund
(Missouri's Foundation for Child Abuse Prevention) www.ctf4kids.org

The National Center on Shaken Baby Syndrome . . . . . .www.dontshake.com

U.S. Department of Justice
Office of Juvenile Justice and Delinquency Prevention . . .www.ojjdp.ncjrs.org

ChildAbuse.com . . . . . .www.childabuse.com

"In the little world in which children have their existence, Whosoever brings them up, There is nothing so finely preserved and so finely felt as injustice."

-Charles Dickens, from Great Expectations

Other Homicides

Of the 45 child homicides in Missouri in 2002, 21 involved perpetrators who were not in charge of the child; of those, 15 (71%) involved firearms.

Representative Cases:

Intentional firearm

- **The increased availability of guns and drugs contributes to violence.**

  A 15-year-old male was found shot to death in the doorway to his apartment building. He had a long history of gang involvement. Police believe the shooting may have been part of a drug turf war.

  A 14-year-old male was shot in his home after a dispute with another juvenile. The gun used was a pistol, found in a night stand in the victim's parent's bedroom.

Figure 33. Homicide Firearm Deaths by Age

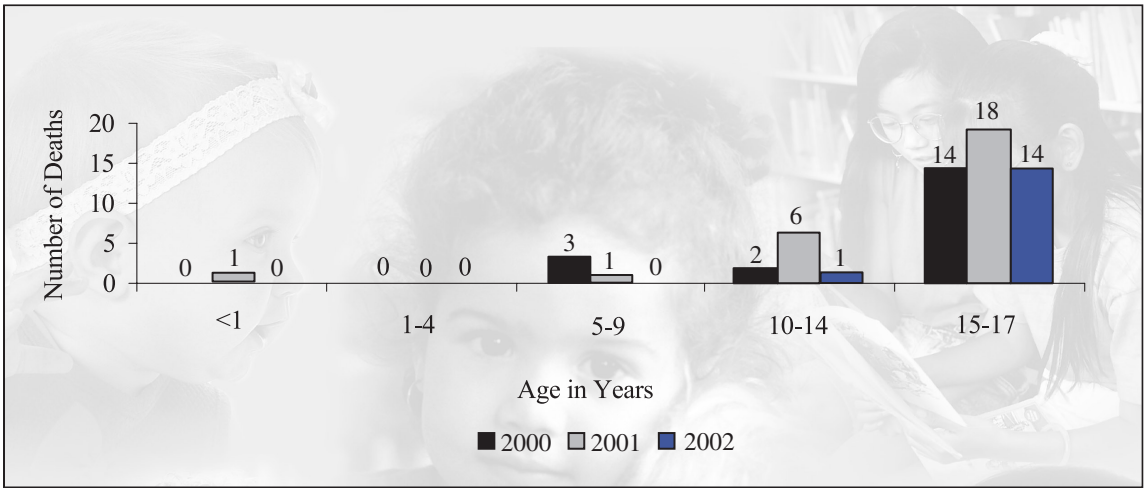


Figure 34. Homicide Firearm Deaths by Sex and Race

Sex	2000	2001	2002
Female	4	4	2
Male	15	22	13
	19	26	15

Race	2000	2001	2002
White	5	5	3
Black	13	21	12
Other	1	0	0
	19	26	15

In 2002, **21** Missouri children were murdered by non-caretakers. The vast majority of victims were adolescents. Most youth homicides involve juvenile crime and violence, or abductions by adults or other adolescents that culminated in murder.

Homicides, Drug or Gang Related		Homicides, Other	
Firearm	12	Firearm	3
Drowning	1	Fire/Burn	1
Victim hid money from a robbery and other members of his gang killed him	1	Disappeared in 1998, but counted in this year's data. Killed by boyfriend during an argument.	1
Stabbed while involved in a large fight.	1	Child abduction by adult perpetrator, culminating in murder	1

Youth homicide:

The most common mechanism of juvenile homicide is firearms, particularly inexpensive, readily available handguns. **Fifteen** Missouri youths died of intentional firearm injuries in 2002. Handguns were used in all fifteen of those murders. Youth homicides are a serious problem in large urban areas, especially among black males. The majority of gun homicides occur in the metropolitan areas of St. Louis and Kansas City. The number of firearm homicides among Missouri adolescents has risen sharply in the last three years, particularly when drug and gang activity is a factor. Other factors known to contribute to youth homicide include poverty, easy access to firearms, family disruption and school failure.

Nationally, the rate of juvenile arrests for violent crime has risen sharply since the mid-1980's. Over the next 10 years (1985-1994), juvenile arrests for murder, robbery, motor vehicle theft and weapons violations far surpassed the growth in adult arrests for these crimes. The growth in juvenile homicides has been particularly disturbing. The rapid rise of gun homicides of youth coincided with the growth of crack cocaine markets in the inner city. The increased availability of guns to youth has been matched by an increased willingness to use violence to achieve one's goals. Violent confrontations are common in adolescence. If both parties are armed, the one who acts first usually gains a decided advantage. The realization that many youth on the street are carrying a weapon increases the potential for an immediate and exaggerated response to real or perceived threats. Young males commit the majority of juvenile crime and violence. With the exception of rape and domestic violence, males are also more likely to be victims of violence than females. By age 17, the risk of homicide among males is five times that of females.

"It is important to keep the problem of youth violence in perspective...The current portrait of youth presented by the media is not grounded in statistical reality. The vast majority of young people do not carry weapons, do not deal drugs, do not join gangs and do not victimize their friends or neighborhoods...Most young people, like most adults, want nothing more than to lead their lives in peace."

-Harborview Injury Prevention and Research Center

"The causes of violence are many. The multi-faceted nature of violence almost invariably frustrates simplistic approaches to the problem. Youth violence can be prevented, but efforts must start at an early age and be sustained over time. Early childhood experiences, the nature of a child's family, the influence of peers, the neighborhood and society are keys to solving the puzzle." (*Harborview Injury Prevention and Research Center*)

Promising Approaches:

Individuals and organizations working to prevent firearm violence, choose and develop strategies that are specifically appropriate for them to use, depending on what aspect of the problem they would like to address. Interventions can be categorized into three basic types: educational, legal and technological/environmental.

- *Educational programs* are often carried out in the schools, community-based organizations and physicians' offices. They emphasize prevention of weapon misuse, the risks involved with possession of a firearm, and the need for conflict resolution and anger management skills.
- *Legal measures* strive to limit access to firearms-the number and type of people eligible to own or possess firearms, as well as the types of firearms that can be manufactured, owned and carried.
- *Technological/environmental interventions*: Firearm design requirements are both a technological and a legal intervention. Environmental and technological measures are based on the premise that automatic protections are more effective than those requiring specific action by individuals.

Violence Prevention Recommendations:

For parents:

- Provide supervision, support and constructive activity for children and adolescents in your household.
- Access family therapy and parenting assistance, as necessary, for help with anger management skills, self-esteem and school problems.

For community leaders and policy makers:

- Support the implementation of violence prevention initiatives.
- Encourage programs that provide support, education and activities for youth.
- Support legislation that restricts access to guns by children and adolescents.

For professionals:

- Support and implement crisis interventions and conflict resolution programs within the schools.

For Child Fatality Review Panels:

- Ensure that support for victims and survivors of youth violence is available.
- Support proactive approaches to crime control, especially those programs that include efforts to confiscate illegally carried firearms.

Resources and Links:

National Center for Injury Prevention and Control . . . . . www.cdc.gov/ncipc

Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc

US Department of Justice

Office of Juvenile Justice and Delinquency Prevention . . . . . www.ojjdp.ncjrs.org

The National Youth Violence Prevention Resource Center. . . . . www.safeyouth.org

Suicides

Suicide was the manner of death of 18 Missouri children in 2002.

Representative Cases:

- **Parents and professionals responsible for children must be educated to recognize and respond to risk factors for suicide.**

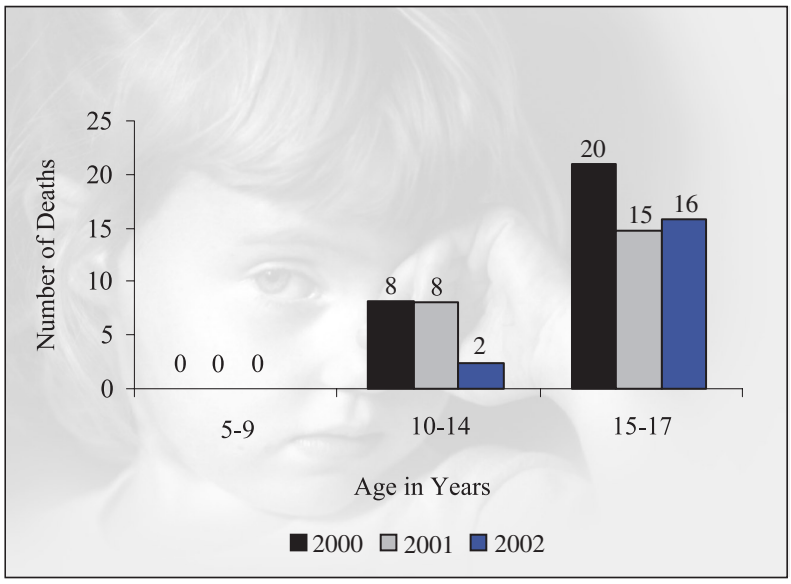
  A 17-year-old female with a past medical history of depression and treatment was found hanging by a swing set in her back yard. She also had a prior suicide attempt.

  A 16-year-old male was found with a self-inflicted gunshot wound to the head. He had a history of drug use and problems with law enforcement. There had been threats of suicide in the past.

  A 15-year-old male was found in his parent's bedroom with a gunshot wound to the head. He had prior attempts of suicide and a history of behavior problems at school.

In Missouri and the United States, suicide is the third leading cause of injury-related deaths for young people following unintentional injuries and homicides. The suicide rate among young teens and young adults increased by more than 300% in the last three decades and rates continue to remain high. In Missouri in 2002, **18** children died of self-inflicted injury; **16** were age 15-17; the remaining **2** were children age 10-14.

Figure 39. Suicides by Age



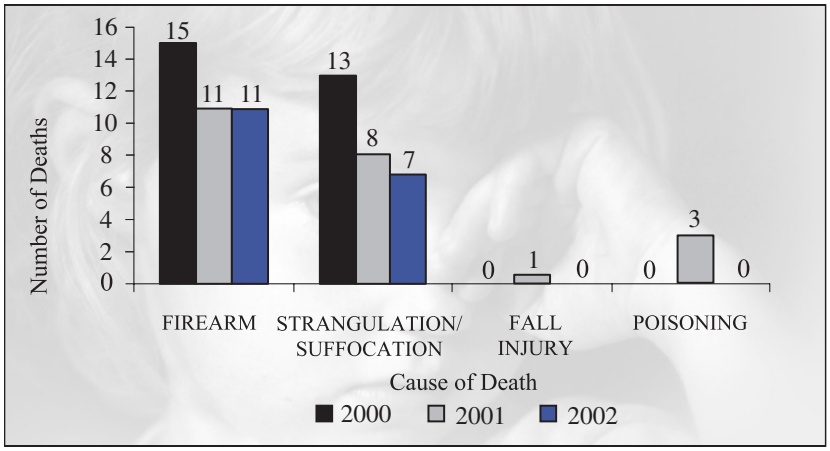
White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

Figure 40. Suicides by Sex and Race

Sex	2000	2001	2002
Female	4	3	1
Male	24	20	17
	28	23	18

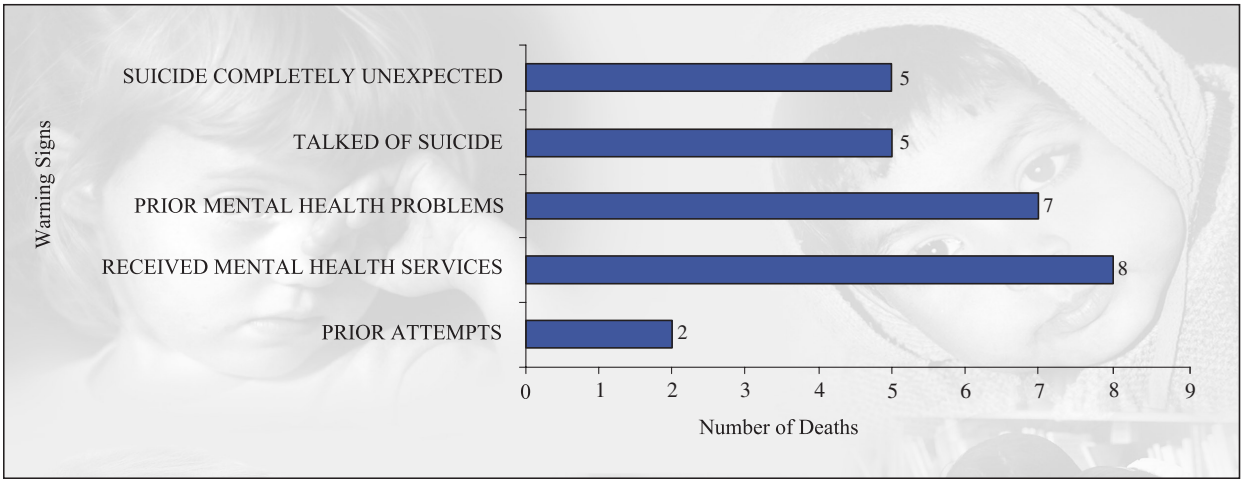
Race	2000	2001	2002
White	24	18	17
Black	4	5	1
	28	23	18

Figure 41. Suicides by Mechanism



Firearms and suffocation/strangulation are the most common mechanisms of suicide among Missouri children.

Figure 42. Warning Signs of Suicide



Of the **18** suicide victims age 17 and under in 2002, **10** (56%) had displayed one or more warning signs.

"Suicide is not about death. Young people who give serious consideration to suicide don't want to die; they want an end to the incredible emotional pain they feel...Young people don't recognize that suicide is a permanent solution to a temporary problem."

-from *Kids Under Twenty-One (KUTO)*

Preventing Youth Suicide:

Suicidal behaviors in young people are usually the result of a process that involves multiple social, economic, familial and individual risk factors, with mental health problems playing an important part in its development. Identified risk factors for suicide and attempted suicide for young people include: mood disorders, substance abuse, certain personality disorders, low socioeconomic status, childhood maltreatment, parental separation or divorce, inappropriate access to firearms and interpersonal conflicts or losses. Only a few studies have examined protective factors among youth for suicidal behavior. Both parent-family connectedness and perceived school connectedness have been shown to be protective against suicidal behavior.

A Summary of Suicide Risk and Protective Factors (Youth and Young Adults)

Suicidal behavior emerges out of a complex and dynamic interplay between an array of individual, social and environmental risk and protective factors. While we know that those at greatest risk are single, young (15-24), Caucasian and aboriginal males, suffering from major depression and substance abuse with easy access of firearms, the reality is that many young people who kill themselves do not fit this statistically determined profile. The chart on the next page summarizes some of the most well known risk/protective factors. Note that it is not an exhaustive list.

The chart is from "Best Practices in Youth Suicide Prevention", developed by the Suicide Prevention Information and Resource Centre (SPIRC) of British Columbia Faculty of Medicine, UBC; 2250 Westbrook Mall, Vancouver, BC, Canada V6T 1W6; email: spirc@interchange.ubc.ca; a more complete discussion can be found in a subsequent document developed by SPIRC: "Practice Principles: A Guide for Mental Health Clinicians Working With Suicidal Children and Youth" www.mcf.gov.bc.ca/youth/suicid_%20prev_manual.pdf

Key Context	Predisposing Factors	Contributing Factors	Precipitating Factors	Protective Factors
Individual	• Previous attempt • Depression/Psychiatric disorder • Prolonged or unresolved grief	• Rigid cognitive skills • Poor coping skills • Substance abuse • Sexual orientation issues • Impulsitivity • Hypersensitivity	• Personal failure • Humiliation • Individual trauma • Developmental crisis	• Easy temperament • Creative problem-solving • Personal autonomy • Previous experience with self-mastery • Optimistic outlook • Sense of humor
Family	• Family history of suicidal behavior/ completed suicide • Family violence/abuse • Family history of psychiatric disorder • Early childhood loss/ separation • Social isolation & alienation	• Substance abuse within family • Family instability • Ongoing conflict	• Loss of significant family member • Death, especially by suicide	• Family relationships characterized by warmth & belonging • Adults modeling healthy adjustment • High & realistic expectations
Peers	• Social isolation & alienation	• Negative youth attitudes toward adult assistance	• Teasing/cruelty • Interpersonal loss • Rejection • Death, especially by suicide	• Social competence • Healthy peer modeling • Acceptance & support
School	• Long-standing history of negative school experience • Lack of meaningful connection to school	• Disruption during key transitional periods at school • Reluctance/uncertainty about how to help among school staff	• Failure • Expulsion • Disciplinary crisis	• Presence of adults who believe in them • Parent involvement • Encouragement of participation
Community	• Community “legacy” of suicide • Community marginalization • Political disempowerment	• Sensational media portrayal of suicide • Access to firearms or other lethal methods • Reluctance/uncertainty about how to help among key gatekeepers • Inaccessible community resources • Economic deprivation	• High profile/celebrity death, especially by suicide • Conflict with the law/ incarceration	• Opportunities for participation • Evidence of hope for the future • Community self determination & solidarity • Availability of resources

Prevention Recommendations:

For parents:

- Seek early treatment for children with behavioral problems, possible mental disorders (particularly depression and impulse-control disorders) and substance abuse problems.
- Limit young people's access to lethal means of suicide, particularly firearms.

For community leaders and policy makers:

- Encourage health insurance plans to cover mental health and substance abuse on the level physical illnesses are covered.
- Support and implement school and community prevention programs designed to address suicide and suicidal behavior as part of a broader focus on mental health, coping skills in response to stress, substance abuse and aggressive behaviors.
- Enact and enforce laws and policies that limit young people's access to firearms and encourages responsible firearms ownership.

For professionals:

- Children who have attempted suicide or displayed other warning signs should receive aggressive treatment attention.

For Child Fatality Review Panels:

- Support or facilitate evidence-based suicide prevention programs in your community.
- In reviewing a possible suicide, consider carefully the warning signs and history of the victim. Consider, also, points of early intervention that can be enhanced in your community to prevent other suicides and suicidal behaviors.

Resources and Links:

National Strategy for Suicide Prevention . . . . . .www.mentalhealth.org/suicideprevention

American Association of Suicidology . . . . . .www.suicidology.org

National Center for Suicide Prevention Training . . . . .www.ncspr.org

Kids Under Twenty-One (KUTO) . . . . . .www.kuto.org

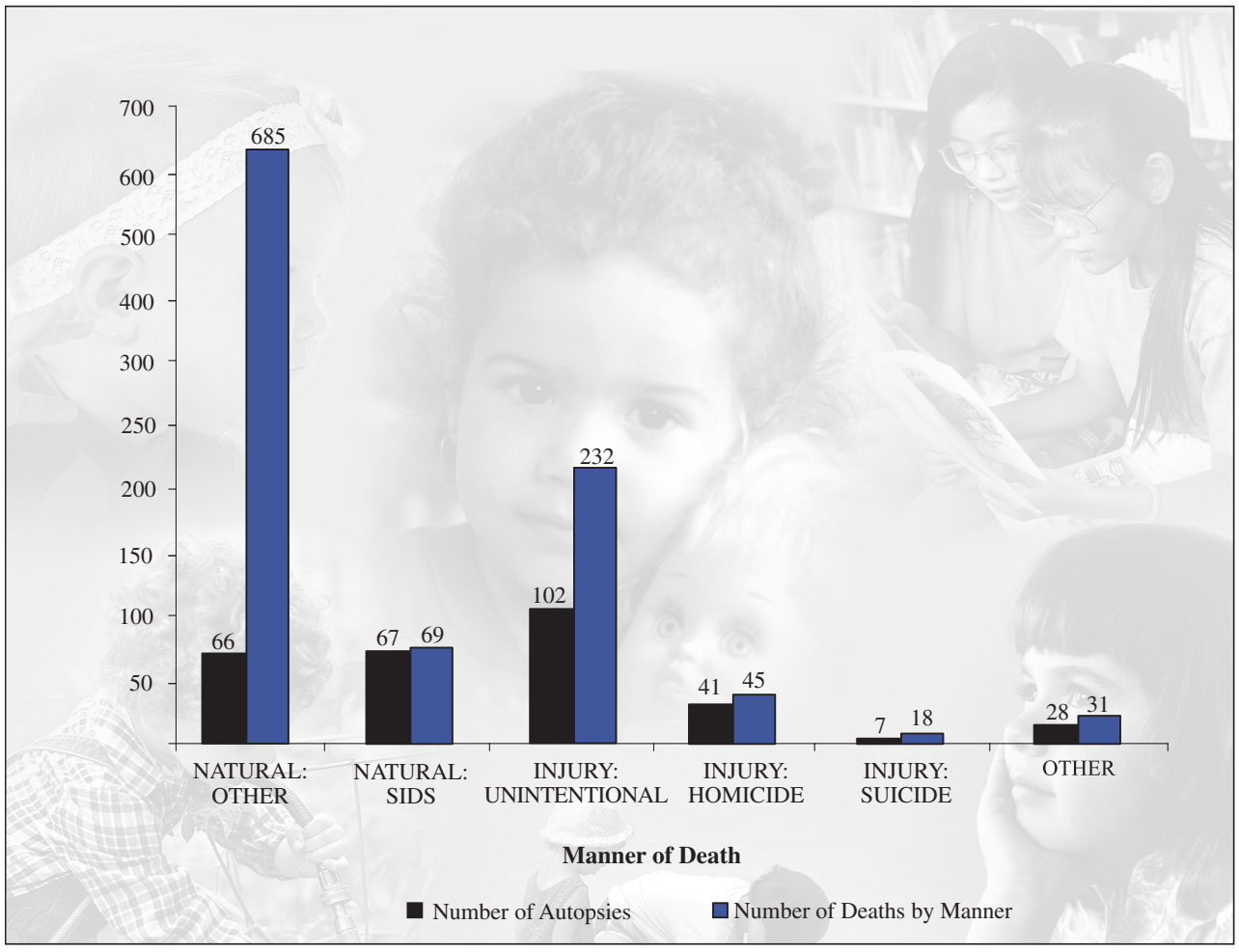
SECTION FIVE:
Appendices

Appendix 1. Autopsies

The autopsy is a critical component in accurately determining the cause of death, especially in the case of sudden infant deaths. RSMo 194.117 requires that an autopsy be performed for all children from 1 week to 1 year of age who die in a sudden, unexplained manner.

Missouri's Certified Child-Death Pathologist Network ensures autopsies performed on children, birth through age 17, are performed by professionals with expertise in forensic pediatrics. Additionally, network members are available to consult with coroners and others investigating child deaths. A listing of network members can be obtained through STAT or on the Internet at www.dss.state.mo.us/stat/cpn.htm

Figure 43. Number of Autopsies by Certified Child Death Pathologist for 2002



Appendix 2. Mandated Activities for Child Fatalities

Every county must have a multidisciplinary child fatality review panel (114 counties and City of St. Louis).

The county panel must consist of at least the following seven core members: prosecuting attorney, coroner/medical examiner, law enforcement representative, Children's Division representative, public health representative, juvenile officer and emergency medical services representative. Panels may elect to have additional members.

All deaths, ages birth to 17, must be reported to the coroner/medical examiner.

Children, age 1 week to 1 year, who die in a *sudden, unexplained* manner must have an autopsy.

A state CFRP must meet at least twice per year to review the program's progress and identify systemic needs and problems.

Panels must use uniform protocols and data collection forms.

Certified child-death pathologists must perform the autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child's death meets the criteria for review, activation of the panel must occur within 24 hours of the child's death, with a meeting scheduled as soon as practical.

Appendix 3. Review Process

Any child who dies, birth through age 17, will be reported to the coroner/medical examiner.

The coroner/medical examiner conducts a death-scene investigation, notifies Children's Division and completes Data Form 1 on all deaths of children, birth through age 17. The coroner/medical examiner, with certified child-death pathologist, determines need for autopsy.

If an autopsy is needed, it is performed by a certified child-death pathologist. Results are brought to the child fatality review panel by the coroner/medical examiner, if reviewable criteria are met.

If death is <u>not reviewable</u>, the Data Form 1 is completed by the coroner/medical examiner. The coroner/medical examiner sends the Data Form 1 to the chairperson of the child fatality review panel for co-signature. The chairperson sends the Data Form 1 to STAT within 48 hours.

STAT reviews the Data Form 1 for accuracy and completeness, signs it and the Data Form 1 is then linked to the Department of Health and Senior Services birth and death data.

If death is <u>reviewable</u>, the coroner/medical examiner sends the Data Form 1 to the chairperson of child fatality review panel for co-signature. the chairperson sends Data Form 1 to STAT within 48 hours. The chairperson refers the death to the child fatality review panel. (The panel is notified within 24 hours.)

The panel meeting is scheduled by the chairperson, as soon as possible. The panel reviews circumstances surrounding the death and takes appropriate actions. The Data Form 2 and Final Report are completed, co-signed by the chairperson and sent to STAT within 60 days.

The Data Forms 1 and 2 are linked to the Department of Health and Senior Services birth and death data. Panel members pursue the mandates of their respective agencies.

Data Form 1, Data Form 2 and Final Report are available on the STAT website: www.dss.state.mo/stat/index.htm.

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2000-2002

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census
	2000	2001	2002	2000	2001	2002	2000	2001	2002	Population
ADAIR	0	0	0	0	0	0	0	0	0	4,796
ANDREW	4	2	0	2	1	0	1	2	0	4,348
ATCHISON	1	0	0	0	0	0	0	0	0	1,547
AUDRAIN	6	2	3	3	1	2	3	1	2	6,360
BARRY	3	3	3	1	1	2	3	2	2	8,875
BARTON	0	2	0	0	1	0	0	2	0	3,445
BATES	3	2	4	3	1	2	3	1	2	4,419
BENTON	3	2	4	3	2	3	3	1	2	3,516
BOLLINGER	1	0	1	0	0	0	0	0	1	3,151
BOONE	50	38	50	15	13	9	10	11	6	30,902
BUCHANAN	14	13	12	8	6	6	7	4	4	20,937
BUTLER	9	7	19	5	1	5	3	2	2	9,886
CALDWELL	1	2	2	1	2	0	1	1	1	2,428
CALLAWAY	9	9	7	4	6	6	4	4	4	10,371
CAMDEN	6	7	6	3	5	0	2	5	4	7,508
CAPE GIRARDEAU	10	6	12	0	5	7	1	4	3	16,097
CARROLL	0	0	1	0	0	0	0	0	1	2,589
CARTER	0	1	0	0	1	0	0	1	0	1,493
CASS	11	5	11	5	3	8	4	1	5	23,307
CEDAR	2	2	2	2	2	1	2	2	1	3,382
CHARITON	1	1	1	0	1	0	1	1	0	1,997
CHRISTIAN	6	4	5	3	3	2	3	1	1	15,114
CLARK	0	1	1	0	1	0	0	1	0	1,852
CLAY	23	22	20	12	9	12	5	4	9	47,530
CLINTON	4	1	4	0	1	3	3	1	2	5,079
COLE	21	11	11	10	9	4	8	4	3	17,294
COOPER	1	3	4	0	3	3	0	3	4	3,801
CRAWFORD	6	1	2	5	0	2	6	1	1	5,990
DADE	0	2	1	0	2	1	0	2	1	1,928
DALLAS	4	6	1	3	2	1	2	1	1	4,302
DAVIESS	2	2	1	1	2	1	1	2	1	2,162
DE KALB	2	1	0	2	1	0	2	0	0	2,403
DENT	0	1	1	0	0	0	0	0	0	3,716
DOUGLAS	0	5	0	0	2	0	0	2	0	3,382
DUNKLIN	10	2	6	5	0	3	2	0	2	8,613
FRANKLIN	12	12	14	6	11	11	5	9	7	25,661
GASCONADE	2	2	2	1	1	2	2	1	2	3,800
GENTRY	1	0	0	0	0	0	0	0	0	1,782
GREENE	52	55	53	6	12	16	7	10	11	53,501
GRUNDY	1	3	0	0	1	0	1	1	0	2,424
HARRISON	1	1	0	1	1	0	1	0	0	2,103
HENRY	6	3	1	4	3	1	4	1	0	5,220
HICKORY	1	1	4	0	1	2	1	1	4	1,782
HOLT	0	0	1	0	0	0	0	0	0	1,272
HOWARD	0	1	1	0	1	0	0	1	0	2,451
HOWELL	8	4	9	4	3	6	5	3	3	9,676
IRON	3	2	2	3	2	1	2	2	0	2,673
JACKSON	130	181	169	65	71	73	32	45	39	168,766
JASPER	11	12	12	3	9	6	6	5	4	26,952
JEFFERSON	29	16	23	18	12	12	15	10	9	55,270
JOHNSON	6	9	7	4	6	5	4	5	4	12,124

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2000-2002

KNOX	1	0	0	1	0	0	0	0	0	1,087
LACLEDE	5	7	10	4	3	6	1	1	3	8,675
LAFAYETTE	5	3	2	4	2	0	4	1	0	8,636
LAWRENCE	8	2	6	4	1	6	3	1	1	9,578
LEWIS	2	0	0	0	0	0	2	0	0	2,627
LINCOLN	10	6	4	6	4	3	4	4	3	11,691
LINN	0	0	3	0	0	3	0	0	3	3,489
LIVINGSTON	1	4	4	1	1	2	0	1	3	3,553
MCDONALD	8	3	8	8	3	7	5	2	7	6,259
MACON	2	7	1	2	4	0	0	2	0	3,820
MADISON	1	1	2	1	0	1	0	0	1	2,904
MARIES	1	1	1	1	1	1	1	1	0	2,318
MARION	3	4	5	1	0	2	1	0	2	7,269
MERCER	1	1	0	1	1	0	1	1	0	864
MILLER	3	0	1	1	0	0	1	0	0	6,198
MISSISSIPPI	4	2	2	2	1	2	2	1	1	3,534
MONITEAU	6	2	1	6	2	1	5	2	0	3,836
MONROE	3	1	1	1	1	1	2	1	0	2,410
MONTGOMERY	3	2	1	2	2	1	2	2	1	3,085
MORGAN	2	2	3	1	2	3	0	1	1	4,595
NEW MADRID	2	6	2	0	0	0	2	4	2	5,223
NEWTON	20	16	29	6	4	6	6	4	8	13,819
NODAWAY	2	1	1	0	0	1	2	0	1	4,245
OREGON	2	0	0	1	0	0	0	0	0	2,515
OSAGE	2	5	2	0	2	2	2	4	0	3,437
OZARK	2	1	0	2	0	0	1	0	0	2,107
PEMISCOT	6	1	3	2	1	1	1	1	0	6,015
PERRY	3	3	2	3	1	0	3	1	0	4,715
PETTIS	5	6	8	3	4	6	2	3	4	10,377
PHELPS	12	3	9	6	3	1	8	0	1	9,442
PIKE	2	1	2	1	0	1	0	1	1	4,293
PLATTE	17	5	7	3	2	5	3	2	2	19,026
POLK	5	2	0	0	2	0	2	0	0	6,947
PULASKI	4	6	4	2	4	3	2	3	1	11,338
PUTNAM	1	0	0	0	0	0	1	0	0	1,254
RALLS	1	4	0	1	2	0	1	3	0	2,429
RANDOLPH	2	0	5	1	0	0	1	0	3	5,874
RAY	2	3	6	0	2	4	1	2	2	6,433
REYNOLDS	0	4	2	0	2	1	0	1	1	1,608
RIPLEY	1	0	3	1	0	2	1	0	2	3,352
ST CHARLES	31	26	28	15	12	10	9	9	7	82,248
ST CLAIR	1	1	0	1	0	0	0	1	0	2,219
ST FRANCOIS	14	9	7	11	7	4	3	4	3	13,335
ST LOUIS COUNTY	186	193	190	62	54	54	26	32	29	255,991
STE GENEVIEVE	3	3	2	1	2	0	2	2	1	4,749
SALINE	3	6	5	1	3	2	1	3	1	5,773
SCHUYLER	1	1	1	0	0	1	1	0	1	1,027
SCOTLAND	1	0	0	0	0	0	0	0	0	1,423
SCOTT	7	8	10	4	3	8	4	1	7	11,085
SHANNON	0	1	0	0	1	0	0	1	0	2,199
SHELBY	1	0	0	1	0	0	1	0	0	1,729
STODDARD	3	4	1	2	2	0	2	0	1	7,093
STONE	4	7	6	4	4	6	1	2	3	6,138
SULLIVAN	1	0	1	0	0	1	0	0	0	1,807
TANEY	6	3	3	3	1	2	5	1	2	8,912
TEXAS	6	4	2	2	2	2	3	1	0	5,734
VERNON	3	4	9	1	2	5	1	1	4	5,436

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2000-2002

WARREN	2	1	8	2	1	8	2	1	6	6,586
WASHINGTON	2	5	3	1	5	1	1	4	1	6,205
WAYNE	1	1	1	1	1	0	0	0	0	3,079
WEBSTER	4	3	4	1	2	3	2	1	1	8,957
WORTH	0	0	0	0	0	0	0	0	0	579
WRIGHT	5	0	4	2	0	2	1	0	3	4,877
ST LOUIS CITY	160	169	162	70	72	72	31	43	31	89,657
STATE TOTAL	1,081	1,032	1,080	475	452	471	334	318	303	1,427,692

Appendix 5. Missouri Incident Child Fatalities (Age less than 18) by Age, Sex and Race 2000-2002

Characteristic	All Deaths			Reviewed Deaths			Injury Deaths		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Age of Child									
0	616	611	673	192	166	186	44	52	47
1	32	35	45	17	17	30	9	14	14
2	31	26	31	22	17	21	17	15	13
3	25	27	17	19	15	13	14	11	11
4	12	14	15	8	12	7	7	10	5
5	21	12	15	13	8	8	13	7	10
6	21	9	13	13	5	9	12	5	10
7	20	14	14	11	9	10	11	8	7
8	17	16	9	10	9	5	10	7	4
9	16	8	10	8	4	7	6	4	6
10	22	17	19	12	10	11	10	11	11
11	14	15	14	10	10	11	7	9	8
12	13	10	14	10	6	7	7	4	7
13	20	15	23	13	8	16	12	7	13
14	35	30	22	15	24	14	22	22	14
15	37	47	27	26	35	23	24	33	22
16	63	52	55	33	37	44	52	39	46
17	65	73	63	42	59	48	56	59	54
20*	0	0	1	0	0	1	0	0	1
21**	1	0	0	1	0	0	1	0	0
Unknown***	0	1	0	0	1	0	0	1	0
	1,081	1,032	1,080	475	452	471	334	318	303
Sex of Child									
Male	618	612	616	275	269	287	215	199	186
Female	463	420	464	200	183	184	119	119	117
	1,081	1,032	1,080	475	452	471	334	318	303
Race of Child									
White	787	706	758	320	306	311	262	221	224
Black	284	310	303	152	141	153	69	93	73
Other	10	16	19	3	5	7	3	4	6
	1,081	1,032	1,080	475	452	471	334	318	303

* Child disappeared at age 16, remains were found 4 years later in 2002.
** Child disappeared at age 15, remains were found 6 years later in 2000.
*** Child believed to be 3 years old at time of death.

Appendix 6. Definitions of Important Terms and Variables

Certified Death:

Death included in the Department of Health and Senior Services, Missouri Center for Health Statistics (MCHS) mortality file, **reported by the death certificate.**

Missouri Incident Death:

Death within Missouri of a child younger than 18 years. On the basis of data from the CFRP Data Form 1 or Data Form 2, one of the following is true:

- The child died as a result of an injury which occurred in Missouri.
- The child died as a result of a natural (non-injury) cause which occurred, or is assumed to have occurred, within Missouri. (This excludes deaths due to illness or other natural cause which occurred outside Missouri; e.g., a non-Missouri residence.)
- The child was born in Missouri and died as a newborn (within ten days of birth) without having left the state.

CFRP Cause of Death:

Cause of death as reported on CFRP Data Forms 1 and 2. The forms include a category for natural cause which includes congenital anomalies, perinatal conditions, and Sudden Infant Death Syndrome (SIDS), sudden unexplained death and injuries classified by the type of agent or force which caused the injury (i.e., vehicular, drowning, firearm, fall, poisoning). The CFRP provides for an indication of whether or not the injury was inflicted, that is, whether it occurred as a result of the action of another person, without regard to intent or purpose of the action. If the case is referred to the CFRP panel for review, Data Form 2 is completed to report the findings of the panel. The Data Form 2 report includes information relevant to possible child abuse and neglect and information related to criminal proceedings.

Mortality File Cause of Death:

The Department of Health and Senior Services Mortality File lists cause of death as reported by the ICD-10 code on Missouri death certificates. The ICD-10 coding classification system includes natural causes such as various diseases, congenital anomalies, perinatal conditions and certain ill-defined conditions (which includes SIDS). The injury classification includes those identified as “accidents” (unintentional), those considered intentional (homicide, suicide) and those with undetermined intent. Injury deaths are further classified by the type of agent or force which caused the injury (i.e., motor vehicle crash, firearm, poisoning, burn, fall, drowning).

Mortality File Manner of Death:

Cause of death reported in mortality file was formatted to conform to “Manner of Death” variable in the death certificate. This includes six categories based on the ICD-10 code: Natural; Accident; Suicide; Homicide; Undetermined; and Pending Investigation.

Appendix 6. Definitions of Important Terms and Variables

Sudden Infant Death Syndrome (SIDS):

Sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene and review of clinical and social history.

- Mortality File SIDS: Death by SIDS, as defined operationally by being reported in the mortality file associated with the ICD-10 code 7980.
- CFRP SIDS: Death by SIDS, as defined operationally by being reported in the CFRP file, from Data Form 1 and Data Form 2, as due to SIDS.

Sudden, Unexplained Infant Death:

Sudden death of an infant less than one year of age due to unexplained cause, requiring the postmortem examination, scene investigation or review of social and medical history. Defined operationally by being reported as sudden, unexplained death on Data Form 1.

Reviewable Death:

Death which as been reported by Data Form 1 as requiring review by the CFRP panel, whether or not the review has yet been completed and reported. The Data Form 1 report is required for all child deaths that occur in Missouri, and includes an indication of whether a review of that death will be required. If Data Form 1 indicates a reviewable death, Data Form 2 should be completed after the review.

Reviewed Death:

Death that has been reviewed by a local CFRP panel and reported on Data Form 2.

Mortality File County of Death:

The county, reported in the mortality file, in which the death was officially recorded. May be a Missouri or non-Missouri county.

CFRP County of Death:

The county, reported by the Data Form 1 and Data Form 2, in which the death occurred. Only deaths in Missouri are included in the CFRP database.

CFRP County of Incident:

The county, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred. If the county of incident is a Missouri county, the death is by definition a Missouri incident death. If the county of incident is outside the state of Missouri, the death is by definition not a Missouri incident death. If the county is in Missouri, but the county of incident is not, only identifying information (Section A of Data Form 1) is requested.

CFRP County of Residence:

The county, reported by Data Form 1 or Data Form 2, as the county of decedent's residence may be a Missouri or non-Missouri county. If the child is a newborn, the newborn's county of residence is the mother's county of residence.

CFRP Region:

Location, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred, formatted to conform to the seven geographic regions defines for the CFRP program.

Appendix 6. Definitions of Important Terms and Variables

Children's Division Child Abuse/Neglect (CA/N):

Death for which the Children's Division reports probable cause findings for child abuse or neglect. Probable cause may result from Children's Division investigation or court adjudication. Abuse refers to physical, sexual or emotional maltreatment or injury inflicted on a child, other than accidentally, by those responsible for the child's care, custody and control. Neglect refers to failure by those responsible for the child's care, custody and control to provide the proper or necessary support, education, nutrition, medical care or other care necessary for the child's well-being.

CFRP Fatal Child Abuse and Neglect:

Child death resulting directly from inflicted physical injury and/or negligent treatment by parent or caretaker, regardless of motive or intent.

Mortality File Child Abuse/Neglect:

Death for which the ICD-10 code in the mortality file indicates abuse or neglect. Relevant ICD-10 codes are 904.0, 967 and 968.4. these abuse/neglect deaths are usually under-reported relative to those reported by the Children's Division as substantiated child abuse or neglect.

Mortality File Homicide Death:

Manner of death due to homicide, as reported by ICD-10 codes 960-979.

Mortality File Suicide Death:

Manner of death due to suicide, as reported by ICD-10 codes 950-959.

Mortality File Autopsy:

Indication from mortality file that decedent was autopsied.

CFRP Autopsy:

Indication from CFRP file that decedent was autopsied and how the autopsy was paid for.

Appendix 7. Death Certificate Manner of Death

(Summarized from: *A Guide for Manner of Death Classification*, draft presented to the National Association of Medical Examiners, September 24, 2001, prepared by Randy Hanzlick, M.D., John Hunsaker III, M.D., and Gregory J. Davis, M.D.)

All states have a standard death certificate that is based upon a model certificate called the US Standard Certificate of Death. The *certifier of death* is the physician, medical examiner or coroner who completes the cause of death section of the certificate that also includes details about the circumstances surrounding the death. Manner of death is one of the items that must be reported on the death certificate and a classification of death based on the circumstances surrounding a particular cause of death and how that cause came into play. In most states, the acceptable options for manner of death classification are: Natural, Accident, Suicide, Homicide and Undetermined.

The death certificate is used for two major purposes. One is to serve as legal documentation that a specific individual has died. In general, the death certificate serves as legal proof that death has occurred, but **not** as legal proof of the cause of death. The second major purpose of the death certificate is to provide information for mortality statistics that may be used to assess the nation's health, cause of morbidity and mortality and developing priorities for funding and programs that involve public health and safety issues.

Manner of death is an American invention. A place to classify manner of death was added to the US Standard Certificate of Death in 1910. It was added to the death certificate by public health officials to assist in clarifying the circumstances of death and how an injury was sustained - not as a legally binding opinion. In general, the certifier of death completes the cause of death section and attest that, *to the best of the certifier's knowledge,* the person stated died of the cause(s) and circumstances reported on the death certificate. Information on the death certificate may be changed, if needed.

There are basic, general "rules of thumb" for classifying manner of death.

- Natural deaths are due solely or nearly totally to disease and/or the aging process.
- Accident applies when an injury or poisoning occurred with intent to harm or cause death. In essence, the fatal outcome was unintentional.
- Suicide results from an injury or poisoning as a result of an intentional, self-inflicted act committed to do self-harm or cause the death of one's self.
- Homicide occurs when death results from a volitional act committed by another person to cause fear, harm or death. Intent to kill is a common element but is **not** required for classification as homicide.
- Undetermined is used when the information pointing to one manner of death is no more compelling than one or more other competing manners of death when all available information is considered.

In evaluating the manner of death in cases involving external causes or factors (such as injury or poisoning), injuries are often categorized as "intentional" (such as inflicted injury in child abuse) or "unintentional" (such as falling from a building). Intent is much more apparent in some cases than in others and it is often difficult to assess a victim's or perpetrator's intent. The concept of "voluntary acts" or volition is helpful. In general, if a person's death results at the "hands of another" who committed a harmful volitional act directed at the victim, the death may be considered a homicide from the death investigation standpoint.

State Technical Assistance Team

Child Fatality Review Program

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